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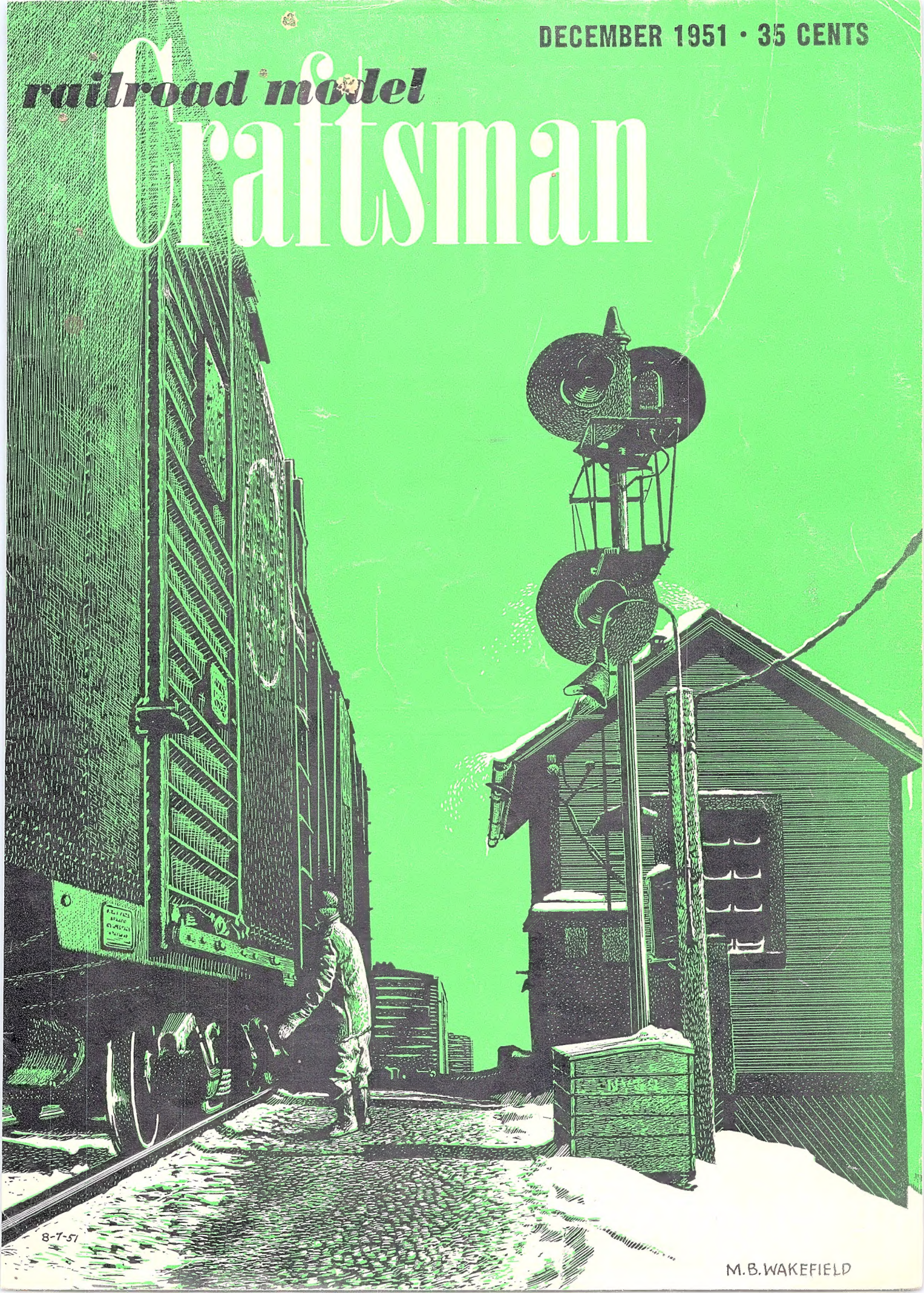

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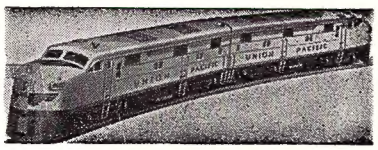

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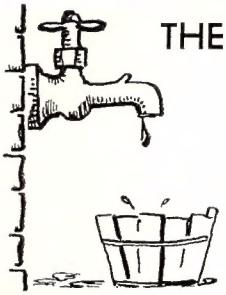

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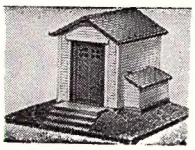

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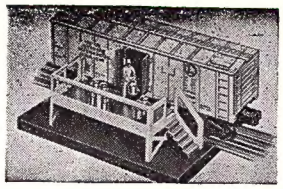

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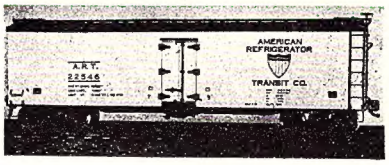

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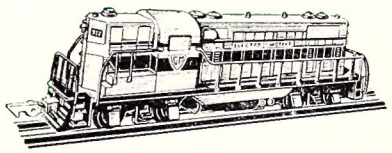

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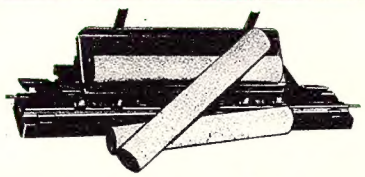

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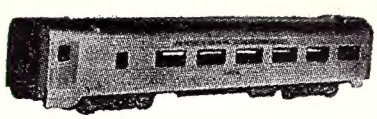

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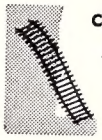

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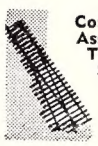

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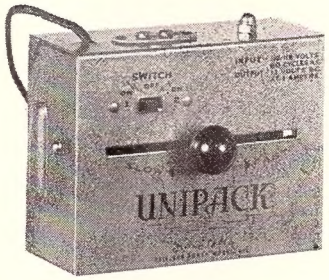

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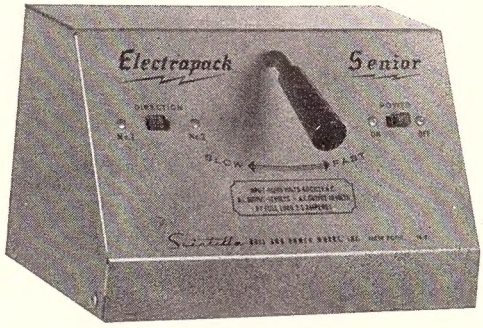

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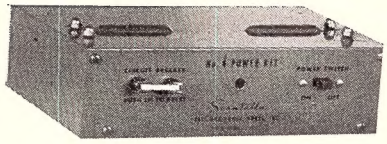

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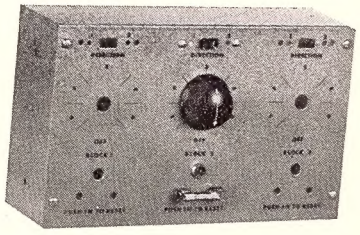

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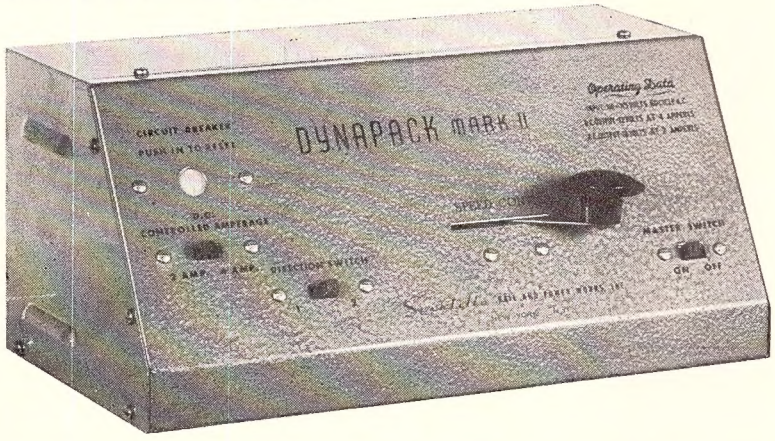

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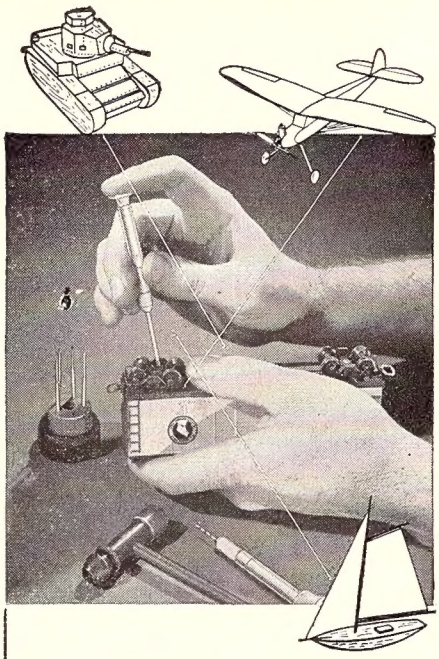

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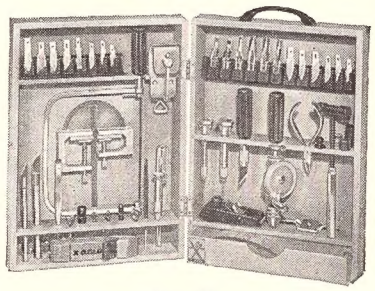

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THIS MONTH'S COVER depicts a winter scene in the vast New York Central yards at Albany, New York. Drawing by M. B. Wakefield.

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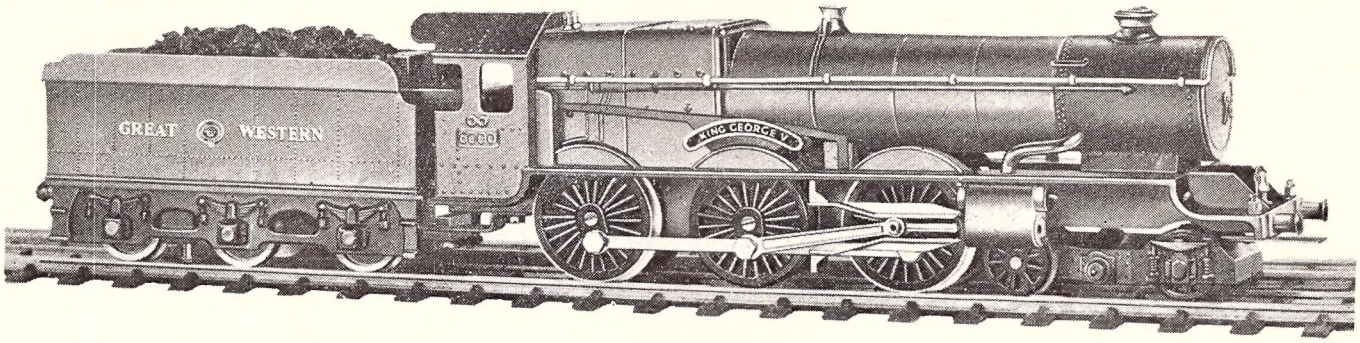

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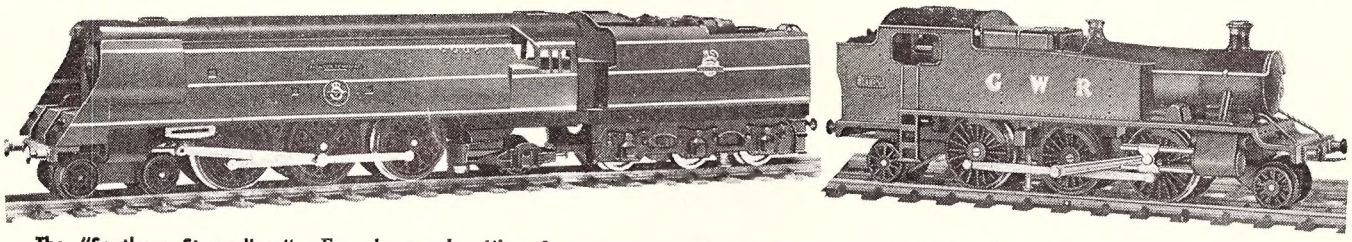

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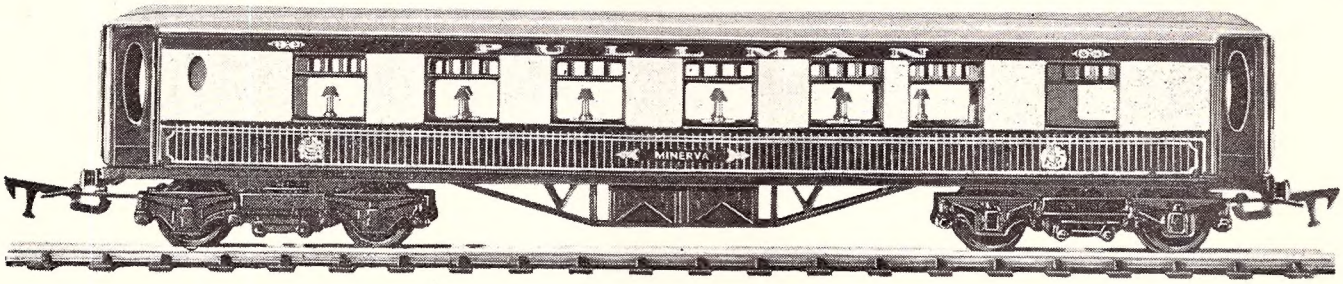

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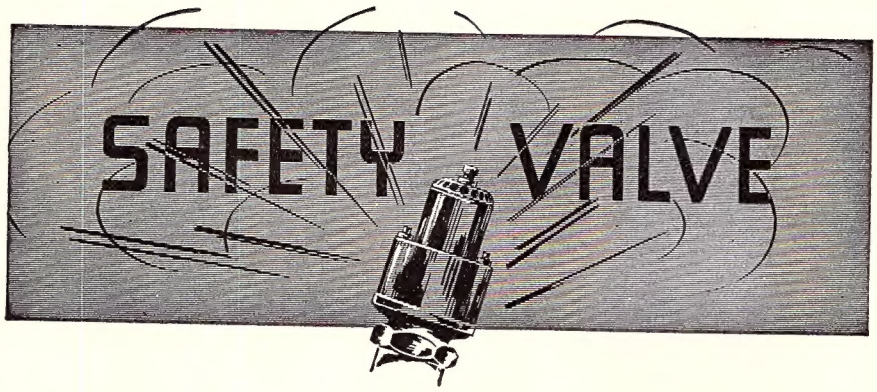

Those Colorful Steamers

After reading your article on Diesel Servicing in the September issue, how can anyone still prefer the diesel locomotive over steam motive power. Besides the action and powerful appearance of steam locos, the servicing facilities for these giants are much more colorful. Compare the relatively simple fueling devices for diesels with the husky coaling station and water tanks; or a busy roundhouse with a common-place diesel shelter. The prototype diesel might be more economical, powerful and modern, but for all modeling purposes, there's nothing like the good old fashioned steam loco and its facilities . . . at least in my book! . . . *J. Kemp*

Three Level Operation

That article on the "Two Pint Size Pikes" (September) was sure interesting; it contained many practical ideas which I have already put to use. Is the subway system in Bill Schopp's layout original; has anyone ever modeled a complex subway, complete with scale cars? This might be a swell project for city dwellers or those who are limited in space. Subways negotiate some mighty sharp radius curves; their track network is most complex.

As another idea, how about running a subway system below the common level of the pike with openings, such as on Bill Schopp's layout, so that the equipment can be seen. Regular steam trains, either freight or passenger, could be run on the basic layout area, perhaps a terminal where many tracks are crowded in a limited space. For a third level, an elevated line could be installed, such as those in use in New York City. With this idea, a tremendous amount of trackage could be included in a limited space and still be following the prototype. This would create many interesting train movements and operations and the layout would strike of the unusual . . . *Ralph Stover*

Prefers Commercial Parts

That recent two part article on automatic couplers and coupling ramps I found to be most interesting however isn't that needless work for the end result? In my humble opinion, the average commercial coupler and ramp combination, available in any hobby store, are not too hard on the eyes and certainly give satisfactory service. What is gained after the tedious hours spent in fashioning home-built couplers and ramps when the commercial variety are so cheap.

That's like the boys who still turn out their own steam domes, bells and lights for model locomotives. They brag about how long it took them and the amount of detail they included when actually you can get realistic, scale castings for those same parts for just a few cents. To me, a modeler who doesn't take advantage of commercial parts is losing his mind. The time saved in buying these commercial parts can be used to advantage in maintenance work, operations and expansion of facilities . . . *Doug Berke*

Just What He Wanted!

I've been reading the "Craftsman" for many years and have always enjoyed each new issue as it is delivered. Naturally I have not seen eye-to-eye with all the suggestions and articles presented, but of late have felt the urge to contact the Safety Valve Dept. relative to the series of articles prepared each month by Louis Hertz.

What present day model railroader gives one hoot . . . about "The relatively Common 0-2-1 type" loco? To me, this series has always been a space waster, but I figured some people might enjoy it. But that September article however takes the cake. Those locomotives, if they can be called that, have absolutely no relation to the hobby as we know it today. How about using this same space each month to show plans of new equipment, layout ideas or information that would aid a real model builder . . . *Lou Brownson*

Wreck Averted

On your October cover, could it be that the little man is about to join the birds? I am sure that the switch engine will side-swipe the caboose because the two tracks are much too close together. Let me know how he makes out. . . . *Rbt. Corning*

(Ed's Note: The little man is beckoning the switch engine ahead since he has detected that there will be .001" clearance in spite of the close spacing of the double track. After the photo was taken and the engine *was* passing, a fly lit on that side of the hack and filted it over enough to scrape the paint off one rivet head!)

We did, mister. And if you (or your boy) own any Lionel, American Flyer or Marx equipment then Toy Trains is required reading.

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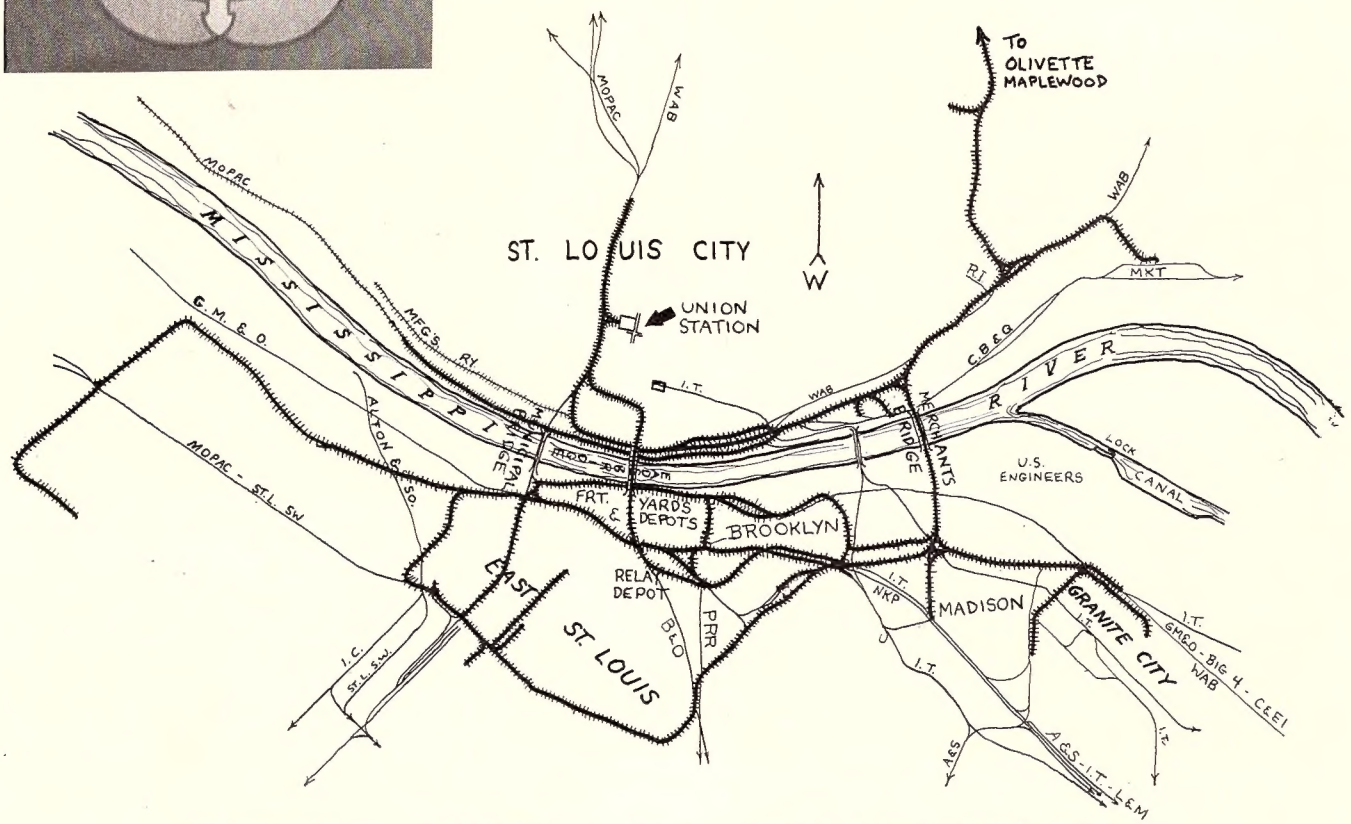
The famed trademark of the Terminal Railroad Association. This design is on the 160 steam and diesel switchers operated by the TRRA which daily move some 7000 freight cars. Started in 1889, it is owned by fifteen proprietary roads.



OPERATIONS TERMINAL

If you have a yen for passenger traffic and for a variety of passenger equipment, the Terminal Railroad Association of St. Louis is an ideal prototype. It truly fulfills that saying, "There's Always a Prototype."

by Hal Carstens

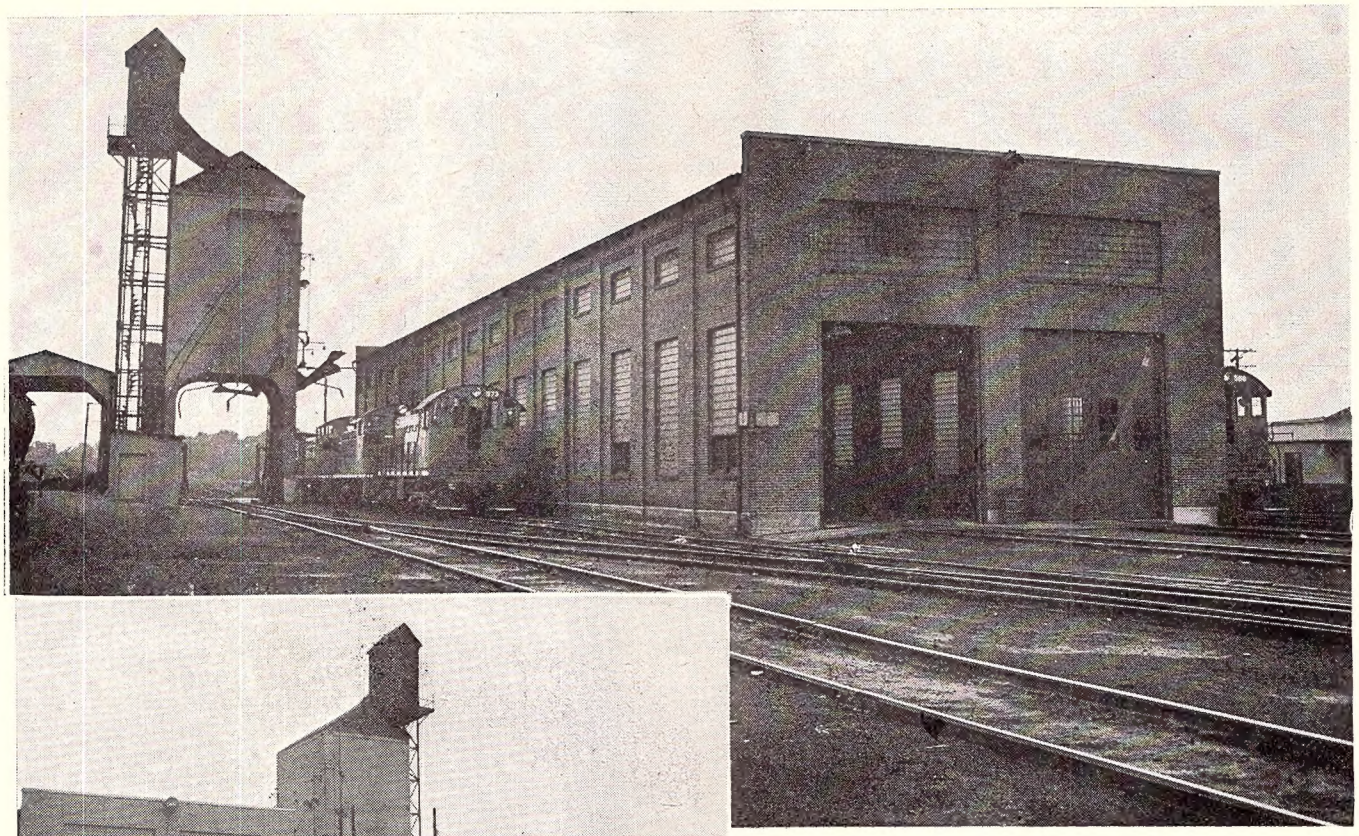
DO passenger cars fascinate you? Do you like to gaze wistfully at the sleek 80′ streamlined cars put out by the leading manufacturers? Smooth cars ready painted for the "Panama Limited" or the "400". Or stainless, bellyless cars for the New York Central and perhaps a completely fluted car of the Pennsy or Frisco. And then do you turn away to exclaim, "How can you put them all on one pike without incurring the wrath of every railroad modeler this side of Point Barrow? Ha, 'tis easy. Just model yourself a terminal railroad and who could think of a better example than St. Louis' Terminal Railroad Association?

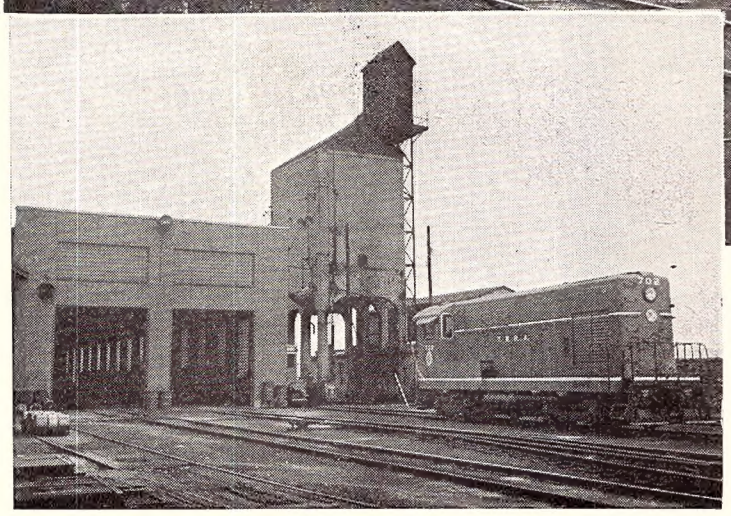
Hop aboard a mythical box car and whisk yourself off to St. Louis. You're liable to come in on any one of the 15 proprietary roads which own the Terminal Railroad Association of St. Louis. The Terminal is used by 16 trunk lines, interchanges freight with two more trunk lines, 3 short lines, 4 switching roads, and even 2 barge lines. Nearly 1500 industries are served by TRRA, which also moves some 7000 freight cars daily. About one third of the material flowing through the St. Louis gateway is destined for use in that city.

160 steam and diesel switchers are needed to handle the freight movements as well as all of the passenger switching in the passenger terminal itself. Here, grey TRRA switchers handle through cars of the Pennsy and NYC and couple them onto trains of the Frisco, Mopac, and UP. Streamlined UP cars bearing the grey scheme of the New York Central are interchanged. Standard steel cars of the Frisco are seen with deceptive "fluted" paint schemes that make them match the newer streamlined cars of that road. Steam, diesels, streamliners, standard varnish, heavy drags and baby "Rebels", solid mail and express; all this and more is the daily scene at "Operations Terminal", the movements of nearly 200 daily passenger trains running in and out of America's greatest arched station, the one level St. Louis Union Station.

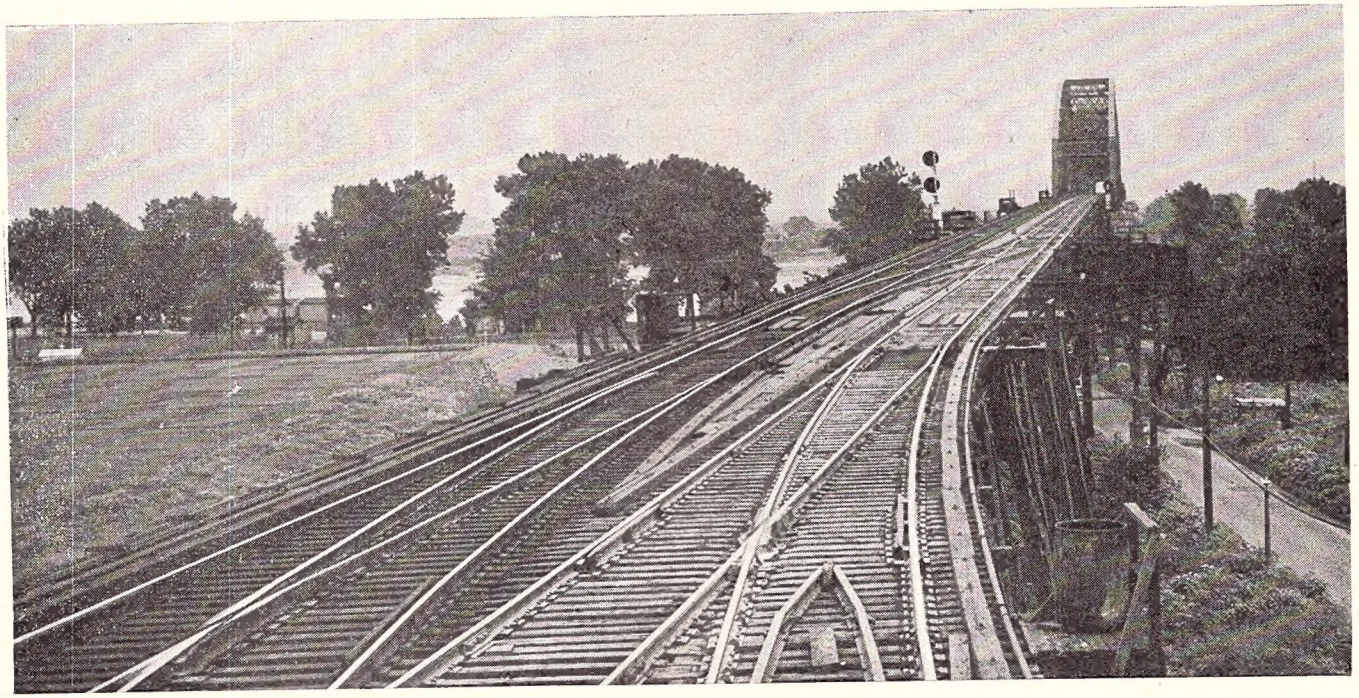
Why a Terminal Railroad?

It was the completion of the Eads Bridge across the Mississippi in 1874 that destined St. Louis to become a great railroad center. However, should the railroads be allowed to cut St. Louis into a

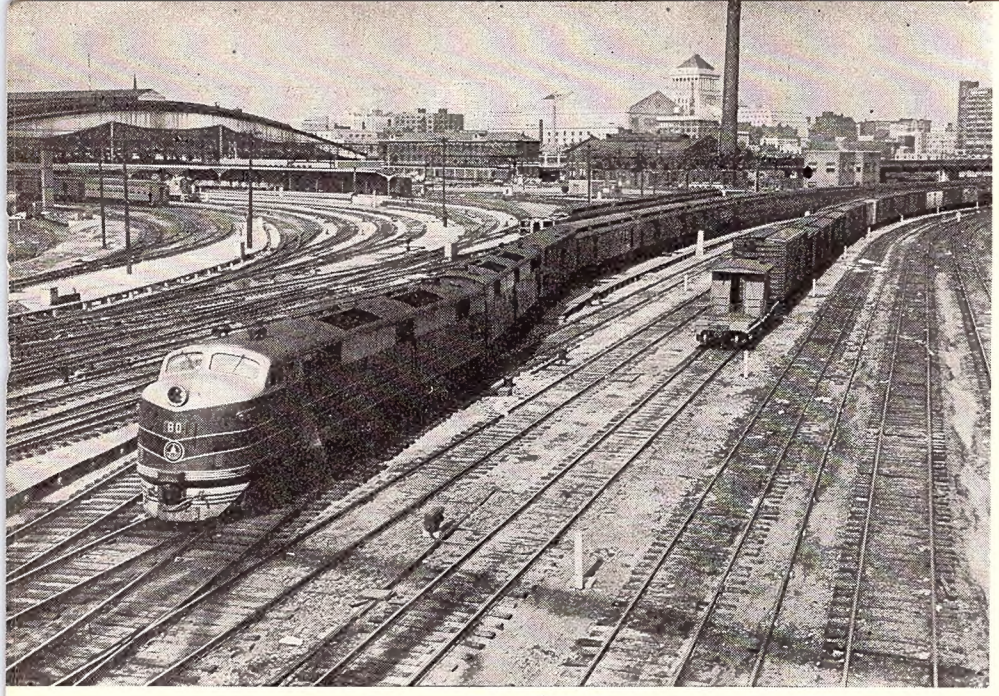




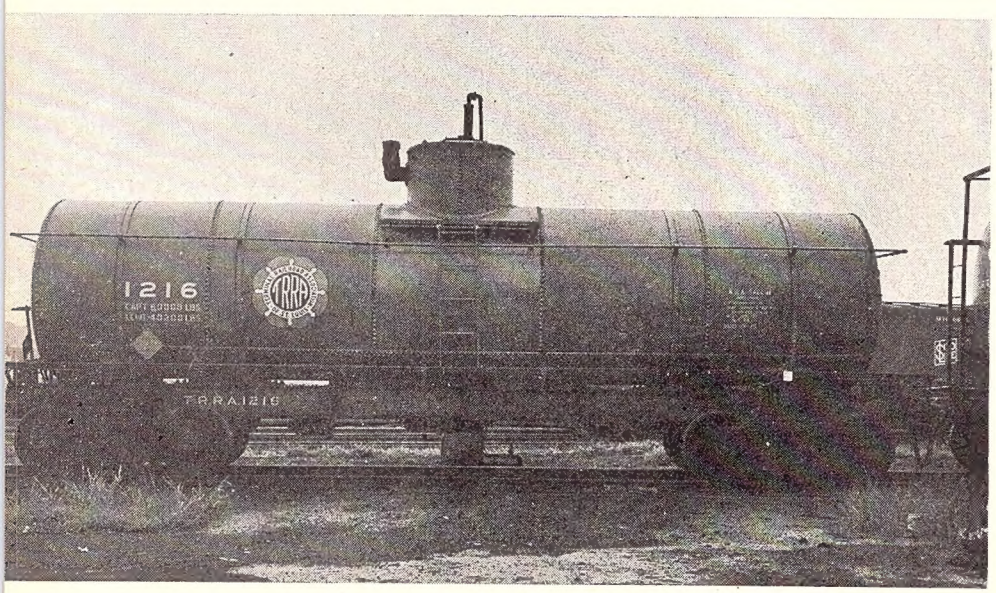
TRRA diesels are serviced at this modern facility. Cleanliness and high availability are prime factors in the TRRA switch to growlers. The outline of the coaling station is a remembrance to most TRRA employees when the entire roster of motive power was steam. Both front and rear views of building are shown. All photos by the author.



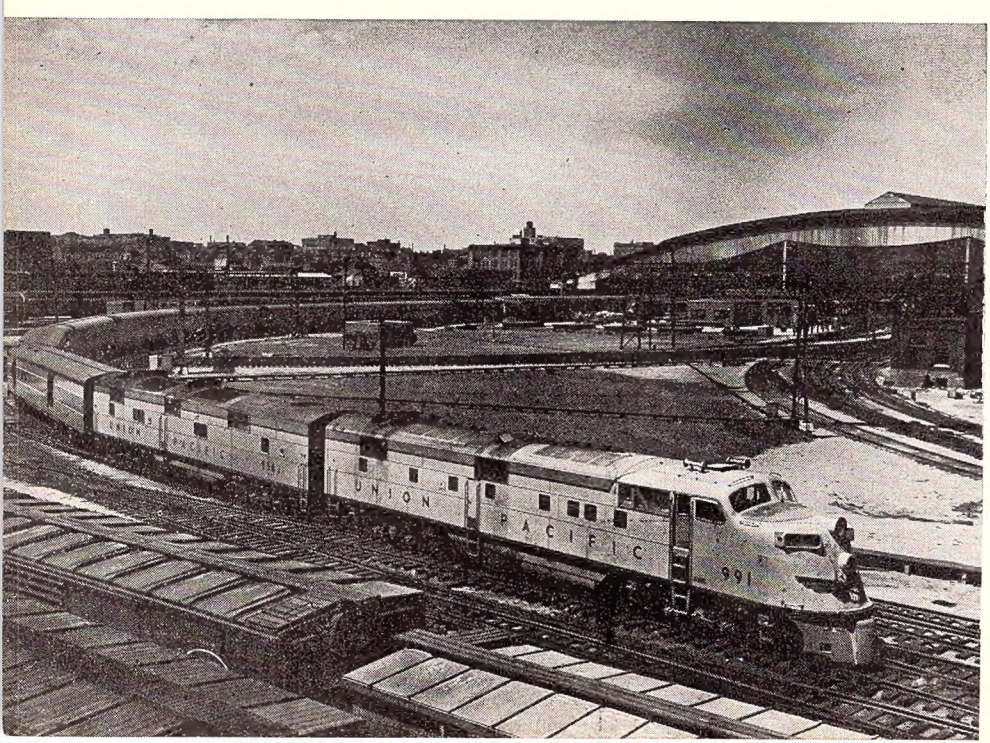
Two tracked main line on bridge spanning Mississippi River. Bridge is extremely high to allow for floods and to permit river traffic to move unobstructed. Bridge is basically of iron girder construction but the reassuring fire barrel (right foreground) is well in evidence.



Gigantic wye with the arched roof St. Louis Union Station on the left.



TRRA Tank Car used for transfer of diesel oil. Cars not used in interchange.



Union Pacific Passenger Train pulling out of Union Station, heading West. Second car of train is on a two track crossing with another main line direct from station.

multitude of crosshatched railroad tracks, yards, and stations? Or wouldn't it be better to have a union terminal which would serve all of the railroads entering the city and handle their interchange problem. This question was settled after some wrangling, when, in 1889, the TRRA came into being.

Motive Pawer

With vast operations in both St. Louis and neighboring communities across the river in Illinois, TRRA keeps it's 160 locomotives moving on 235 8 hour engine tricks daily. This averages two tricks daily per engine and leaves 8 hours for servicing. Such continuous use plus strict smoke abatement laws in St. Louis is bringing about rapid dieselization of operations. Rare, if at all, is the TRRA steamer you'll find on the west bank of the Father Of Waters. Those remaining in Illinois are beautifully maintained and now sport the attractive new Terminal herald, designed by a TRRA employee in a company sponsored contest. Not only is the herald to be found on all TRRA locomotives and cars, but it has blossomed out on bridges; in fact, nearly anyplace where it can be seen by the passerby or motorist.

Diesels are varied, they ain't ALL alike, and most major manufacturers are represented. EMD, Alco, Baldwin, and Fairbanks-Morse switchers whine and growl past each other 24 hours per day. Even the new Lima-Hamilton diesel has been given a tryout and possibly soon may join the grey fleet.

The Terminal Railroad Association of St. Louis carries on operations not only on ground level but also underground and also on an extensive elevated structure. The elevated structure parallels the west bank of the Mississippi and it is along this line we find three levels of operation at one point. Not only are there 3 levels of railroad track but also a street on the same level as the bottom track and a highway over the top track on the Eads Bridge. Add river traffic on the Mississippi and an occasional flying machine overhead and we have 5 level operation at one point! Regretably, from a railfan standpoint, the town fathers would like to combine the el and surface tracks into one semi-underground track, so that a proposed veteran's park will not be marred by the sight of wayward boxcars.

Just Like The Models

Terminal Railroad operates no passenger trains but it does have several "Cab Runs" which pick up and drop off employees in far sections of the line. Since this run operates in a most typical model railroad fashion, it is certainly worthy of note.

The unique train consists of a diesel switcher plus one open end coach. Starting from the Union Station, it meanders through the yards toward the river,

thence onto the elevated structure with the tracks curving rather sharply to the left (northward). The train continues, passing under the Eads Bridge, down onto the level in an industrialized area, then once more up onto the long approach to the all-rail Merchants Bridge. Once in Illinois, the large Army Engineer Depot may be seen on the train's left. This is followed by another right turn and the large terminal of the TRRA at Brooklyn, a sweep through Relay Depot, onto old Eads Bridge, into a subway, dank and musty, from years of service and then once more out into the yards and St. Louis Union Station.

The possibilities for duplicating this scene in miniature at once become clear. It's the old familiar out and back theme and can be followed through with all of the trains leaving your model terminal. While one train is out making the rounds, a second train is made up. A few hidden storage tracks will make the operation even more interesting as the trains will then be made up, seemingly without end. First #51, L&N standard coach train, leaves at 8:30 AM followed a few minutes later by the CB&Q "Mark Twain Zephyr". At 8:58, the GM&O "Abraham Lincoln" will depart followed perhaps by the crack IC "City of New Orleans" or "Green Diamond". Around 10 AM, the B&O's "National Limited" will ready itself for it's run to New York as will the Pennsy's "Penn Texas".

At noon, make up the beautiful blue conventional train of the Wabash, the "Banner Blue" (Now streamlined), followed at 1 PM by the New York Central's "Knickerbocker". At 4:45, the C&EI's "Cardinal"; at 5 PM, the Rock Island's "Zephyr-Rocket", at 5:30, the Frisco's "Texas Special", an Alco powered Nickel Plate standard train to Buffalo, #10.

The suggested condensed table above will of course be matched with train arrivals coming in not too long before departure time. It doesn't matter much if your trains depart on a different time than the prototype or if they are shorter. Make sure, however, that they match the prototype in cars and motive power.

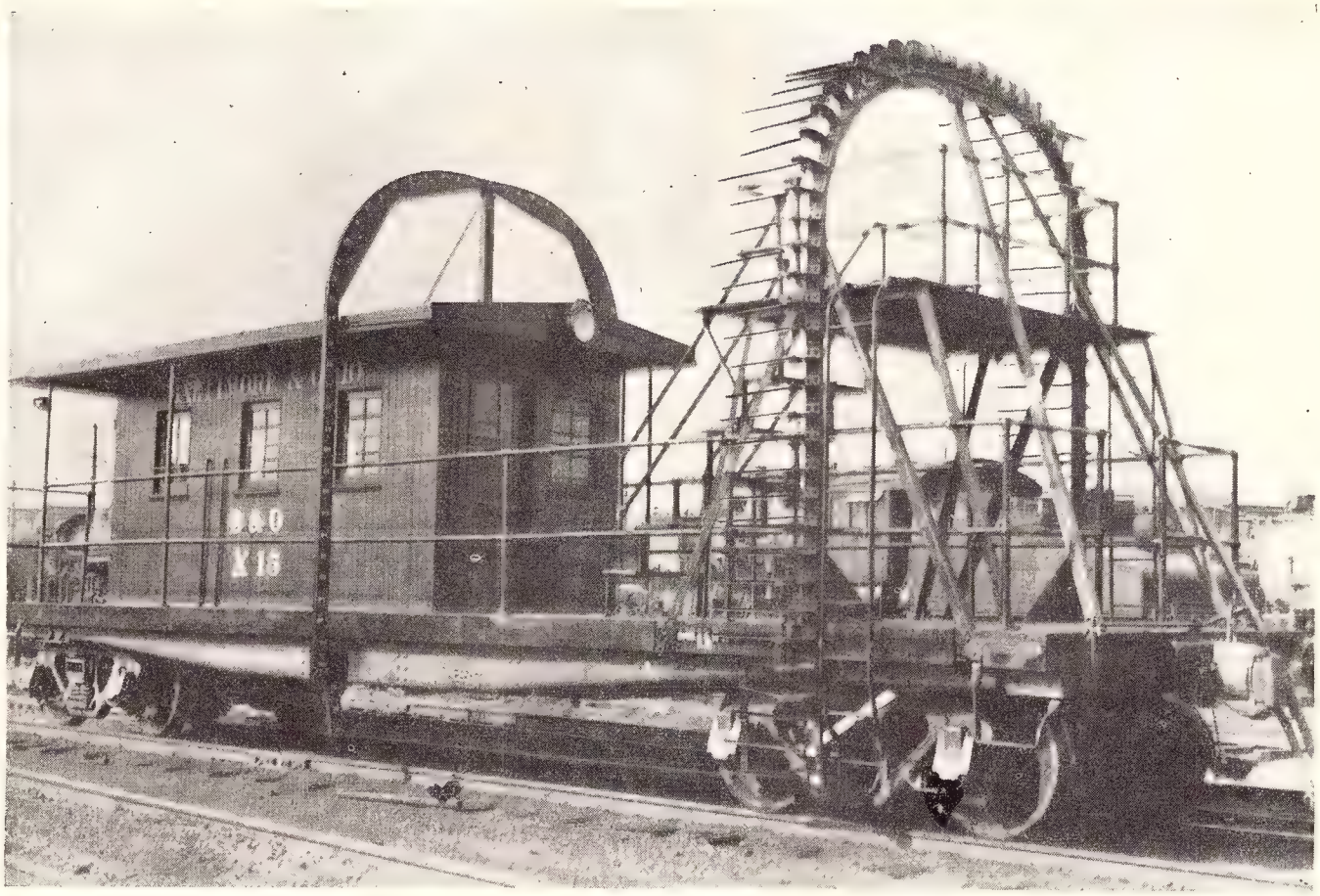
Also, how far can you stretch a point in having a Union Pacific train entering a "Jersey City" terminal or an Erie milk train into the mile high "Denver" station. But what's the difference; New Jersey, Colorado, or the State Of Confusion? You're running scale trains, prototype trains in all the glory and splendor of the original. The names you give your model towns is incidental.

Acknowledgement must also be given to Mr. Allen Lister, genial General Manager of TRRA, who supplied much of the information and made possible the taking of many of the photos in this article.

One of 160 locos used in TRRA. Switcher is making a train for western points.

Three level operation with river to right. Upper tier of stone bridge is for autos.

Short Passenger Train of the Gulf, Mobile & Ohio Railroad pulling out of station off to left of photo. Note the intricate trackwork and the bridge spanning yards.



Clearance Car

A general service car used to check clearances of tunnels and bridges, also run in a special train in advance of oversized loads. Builds into an interesting, useful model of wide appeal.

by Bill Schopp

A RAILROAD clearance car is such a rare bird that no model railroad, if percentages of types of cars on a real railroad be followed, should have one. At the same time it is such an interesting looking car that every model railroad president will want one and hang the expense. Clearance cars have been written up only twice in model railroad magazines, both times the same car, New York Central—a rebuilt passenger coach —, and at this time no commercial kit is available. But here is a Baltimore & Ohio clearance car that is a *distinct* car type all by itself, which I have modeled in HO gauge. This is not a super-detailed model that I have built, although it has that appearance since even the essential parts get complicated looking. Actually, many of the parts are oversized for sturdiness, and I will say right here and now, hiding my red face, that for the larger gauges, the same thicknesses of material should be used except for obvious changes necessitated by the bigger scale. (And if some HO gauger wants to make scale sizes 2" x 2" angle braces, more power to him!)

A clearance car on a railroad has two purposes. It is periodically taken over all tracks of the system to check clearances for the record: a rock movement may have closed a tunnel slightly, a new brace may have reduced clearance at a bridge, a fence may have been bent in slightly, and so on. If so, the fingers or feelers or sticks on the main clearance frame (over the truck-center) will be pushed out of position and the change can be spotted if it impinges on the standard clearance for that division. If a shipment that is oversize or very close to the maximum clearance outline is to be routed over the road, a clearance car may be coupled ahead of it in a special train with the outline of the shipment indicated by dowels stuck in the center clearance frame. This, by the way, makes a very interesting special model railroad train, just an engine, a clearance car, a flat car with oversized load, and a caboose.

The car plans presented here have been redrawn from the official Baltimore & Ohio blueprints which were to 1" scale. Some dimensions have been simplified, and much unnecessary (to modelling) detail has been omitted such as the interior fittings of the cabin. The drawing is to 3.5 mm (HO) scale, but with enough of the full sized dimensions to enable anyone working in another scale to build a similar car.

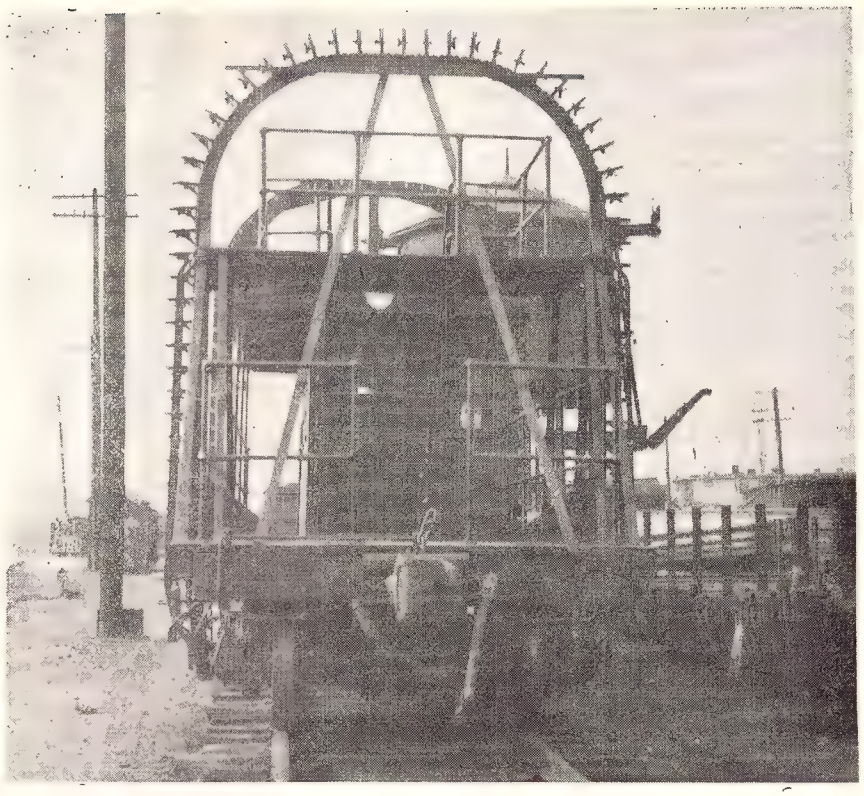
Take a piece of standard HO car flooring shorter and narrower by 1/16" than the car dimensions given. Mark a center line on the bottom and mount your couplers. You have to do this first since, once the car is completed, the superstructure is too fragile to risk doing much work with the car upside down. My model has Kadee couplers, which I have found stay in place better if the little nails are changed to #1 x 1/4" or 5/16" screws as used with Mantua couplers. At any rate all bugs regarding free swivelling and centering of whatever couplers you use must be worked out at this time. Also mount trucks. If these are to be painted box car red (I recommend it) do so at this time, but if the trucks are sprung, dissemble them first to avoid getting the springs fouled up with paint. Cut off any part of the truck or coupler mounting screws that protrude above the floor, then cement on a floor made from bristol board scribed cross-ways. Edge the sides of the floor with strips of bristol board and make end-sills of the same material and cement in place. Make fish bellies from bristol board and cement in place. Paint box-car red. Steps, grab-irons, etc. are wire, inserted into tight pre-drilled holes. Brakewheel shaft is a square J

shaped wire thrust into bottom of floor. Brake wheel is cemented to top when car is completed.

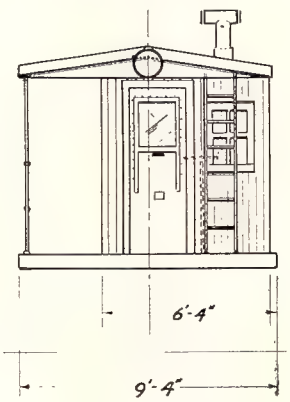
The cabin may be made from scribed bristol board with windows cut out. Strip-wood may also be used. Window frames and sash may be built up, or you can utilize some of the Silver Streak castings available at most hobby stores. Bars across windows on one side are made of wire. The four sides, when completed, are painted caboose red, then cut apart, the corners bevelled to about 45°, and cemented in place and together. Note the cabin is off-center. Cement pieces of 1/8" sq. stripwood inside to reinforce joints between cabin sides and floor. Touch up the paint on corners. Standard freight car roof is used, but cut off all of the soffit (lower part) except that which will stick down inside the cabin. Cement in place. The roof will later be edged with filing folder stock, and painted.

The numerous railings are made of wire, and I did not think it profitable in HO scale to duplicate the pipe-fittings at the intersections, so my way of doing it is somewhat simplified. I suggest any light, straight wire such as stretched #22 copper, tinned annealed steel wire, brass wire (sold in straight lengths by Pittman for trolley overhead). At any rate take any drill slightly smaller than the diameter of the wire you will use and mount in a pin-vise. Spot the locations of the various posts, drill thru the floor (or roof) with this drill, force in wire, leaving plenty of excess. The top railing should be soldered in place first. I spaced this uniformly with a piece of 3/8" thick wood (Northeastern). Next the lower railing, spaced with a piece of 3/16" thick wood. The end rails are square U's of wire, with extra lower rails. Chains are from HO chain sold by most hobby stores. Cut off posts uniformly.

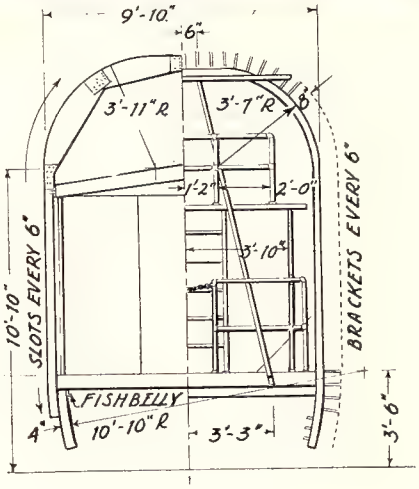
The platform is 1/32" pre-scribed stripwood with a second layer underneath with the grain running the other way and inset from the edge. The uprights are pins, inserted after the floor has been pre-painted box-car red. The railings are shaped to a square C shape, then soldered on using the same spacers as above. The platform is supported on four 2 x 2 angle braces which I "duplicated" with 1/32"



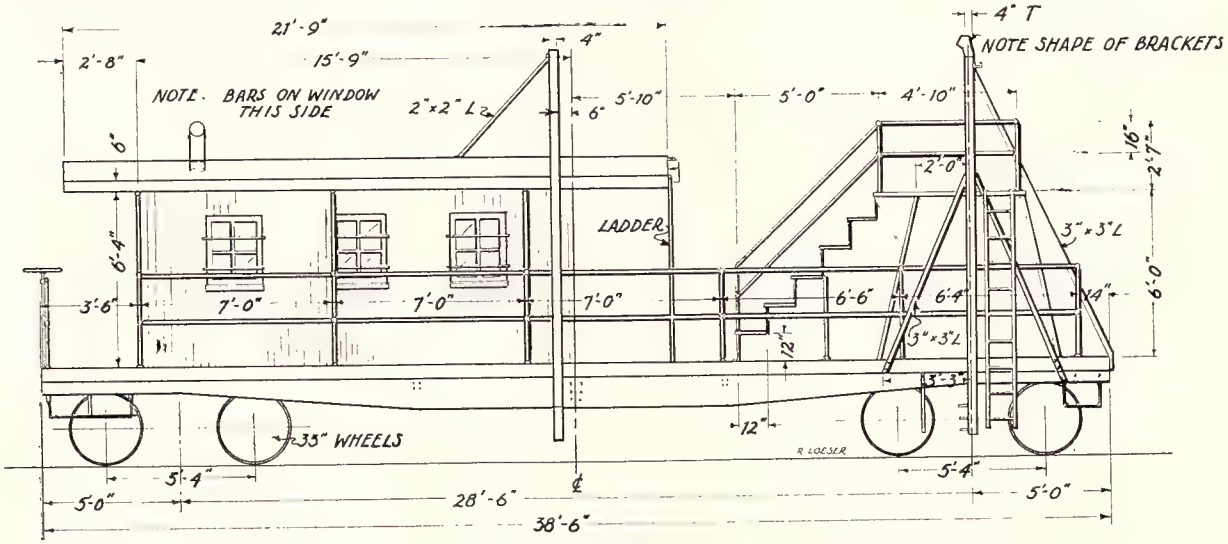
Business end of car as stored on a siding on the Baltimore and Ohio Railroad. The plans below are shown full size HO.



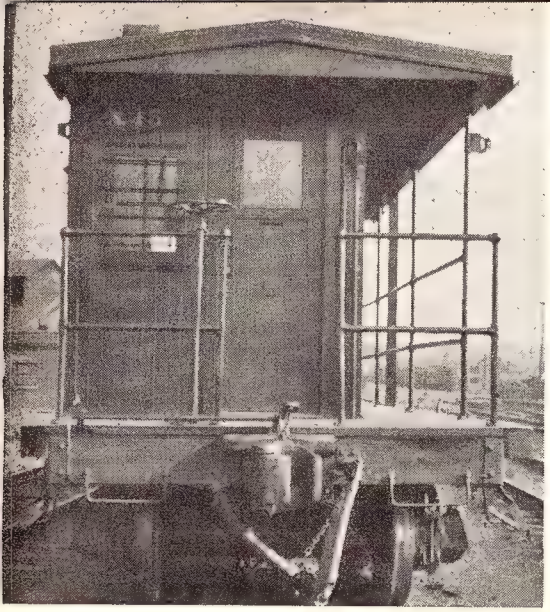
ELEVATION (CENTER)



END ELEVATION



SIDE ELEVATION



Rear view of car showing offset shelter and protected passageway. Actual B&O prototype.

Side view of car showing superstructure mounted on a standard flat car body. This car can be put to actual use on your model railroad and will prove most interesting.

sq. bass-wood, pre-painted. I drilled, with the same li'l drill mounted in my pinvise, holes at an angle at the right places up through the floor of the car, then enlarged these holes with a drill just under 1/16" diameter. Spacing the platform above the railings with the above mentioned 3/8" thick piece of wood, and holding it as near the right location as I could, I inserted the supports up from under the car. Each one first had its tip touched with cement, then shoved through the hole. When the brace was almost high enough to touch the underside of the platform, I daubed a mess of cement on it underneath the floor and pushed it up, meanwhile holding the platform *down*. Then I broke off the excess support under the floor. I put this aside to set firmly and turned my attention to the steps. I will tell you how I should have made them, not how I fumbled around.

Take four to six inches of #24 copper wire, stretch with vise and pliers, then mash somewhat flat between two smooth jaws in a vise or with two steel blocks. If you can find some flat wire, so much the better. This is then bent zig-zag, with zigs and zags both one scale foot as near as you can manage. When you have more than twice as many steps as you'll want, cut in half. If pieces don't match up, rebend until they do. If you come out with one less or one more step than the prototype, remember this is not a super-detail model. The steps are made of metal (cut from a tin-can) and must be soldered to these strap-"iron" risers. Yike! Tin the bottom of all steps with solder.

Make a jig by slitting a piece of 1/4" thick balsa wood with an Xacto knife. This will help steady the lower end of the riser, while you hold the upper end with your left hand. Rest the step, solder side up on the balsa, over the slot and jockey so that riser comes near the end. Dab on a bit of soldering paste and touch with a hot iron, thus soldering one end of one step in place without (I hope) scorching your fingers. Attach the other riser to the step (it will be the top step when turned over, but we will think of it as the bottom now) in the same way, *except* that you have to be careful not to unsolder the other riser. I did this job *quick* like a bunny (as they say, although the only bunnies I am acquainted with are lethargic from eating too much) and didn't unsolder the other side, but if you have trouble, get some powdered ochre at a paint store, mix a little with water into a paste, and dab on the previously soldered joint. This is a help, not a cure. Add other steps the same way, adjusting by re-soldering and slight bending as you go along.

When you are done, dip the steps in alcohol to remove soldering paste excess, let dry, then paint black. Next cement the steps in place, to the floor and the underside of the platform. Let dry thoroughly. Then drill up thru the floor and insert the vertical braces midway up the stairs, just as you did the platform supports. These should also be of pre-painted 1/32" sq. bass-wood. Shape step hand-rails, insert into holes in floor next to bottom step and solder to platform railing. Solder in lower step railing. The side ladders are soldered to pins of railing wire pushed into car floor and cemented to underside of platform. These should be pre-painted, then touched up.

Each of the two clearance frames I cut from a solid plank of 1/16" bass-wood with a jewelers saw. If they break, cement, and reinforce with typing paper. Then paint both black. I tried cementing the frames to the car, but found it not strong enough. Finally I pinned them in, drilling two holes through the lower part of each side into the car floor and inserting a piece of hand-rail wire in each hole. The center frame I also pinned to the edge of the roof. The various braces for the frames are more pre-painted 1/32" sq. bass-wood, cemented in place and allowed to dry thoroughly. You may have to notch the platform to get in the two longest braces.

The brackets which hold the permanent feelers on the end clearance frame presented a problem. Part of my solution was to have less of them, to make the job easier, spacing them nearly a scale foot apart as explained here. First of all I made a punch and die set from a piece of Northeastern 3/16 x 3/32" channeled bass-wood (for the die) and 1/8" square for the punch. I then cut strips of shim brass about 1/16" wide from .003" stock (see your hobby dealer or auto supply store)—a few thousands one way or the other doesn't matter much. I then used my punch and die to form this into about thirty little square U's of shim brass. They weren't entirely square when they came out of the die and were cut off, but a little work with tweezers fixed that up. (You can see I decided to forego the tricky shape of the prototype brackets).

Then I took another strip of .003" shim brass, 1/16" wide and long enough to wrap all the way around the clearance frame and then some. This I spiked to a piece of asbestos (wood would do, but would char) and tinned with solder. Then one by one I grasped each little U by one "arm" with my left hand, and with my right hand soldered them in place on the strip, allowing a very little space between. When the strip was completely covered I stretched it over the clearance frame, trimmed the ends, trimmed the arms of the U's to be approximately equal, then cemented the strip around the frame. After it had dried I painted it black. When this had dried I cemented in short lengths of wire to represent the clearance fingers. No dimensions were given on the official plan for these, but they appear from the photos to be about a foot and a half long. I compromised on a total length for each (including part inside the bracket) of 1/4" in HO. If you intend actually using the car to check clearances, cement fingers straight out, otherwise have them folded back as in the photo. Fingers-out position makes the car a little like a porcupine, dangerous to pick up or brush against. Split bamboo from your model airplane days could also be used for fingers.

Don't forget the spot-light at the back end of the cabin roof, which can be made from a Mantua Mogul headlight. Cement it on. Lettering, for whatever road you wish, should be simple, just road initials and car number. We have been painting as we go along, so no paint job is now required.

A section of Earl Cochran's HO gauge layout with the mainline in the foreground and the rear tracks on a steep grade, rising to the entrance of the hump yard. Operating space can be seen in right foreground.

MODEL HUMP YARDS

Contrary to popular belief, hump yards can be modeled in relatively small space. Two layouts are described here which include a modified version of a hump installation.

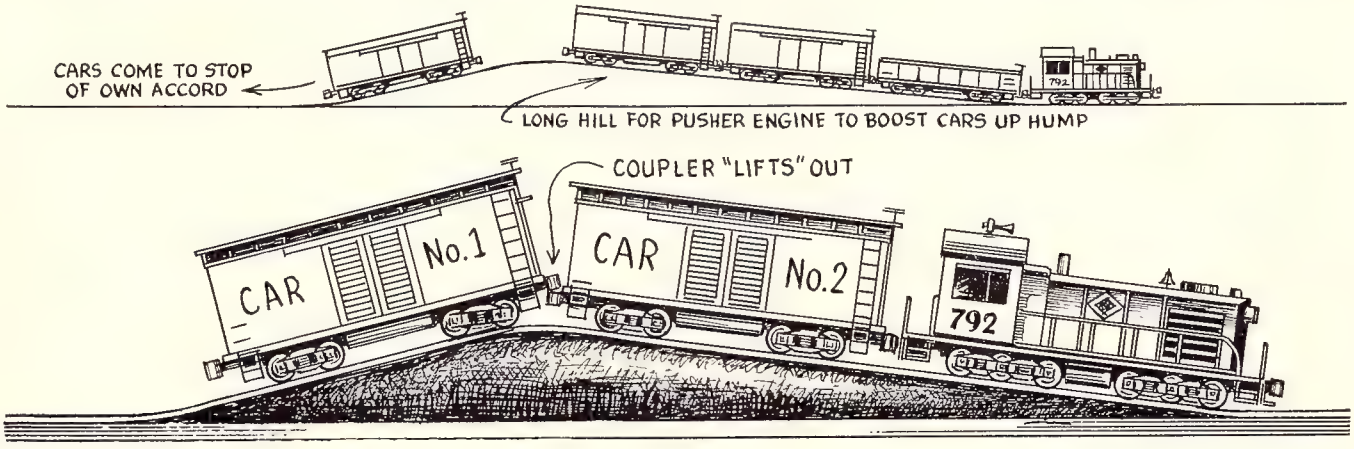
by THE LAYOUT DOCTOR

LAST month we described the various installations found around prototype hump yards; the physical characteristics with specifications standard throughout the country. This month we adapt prototype hump yards into miniature form, condensing the space into the area available to the average modeler.

Hump yard operations are one of the most important of all railroad functions and undoubtedly the most interesting. To watch the real freight cars swing from track to track under their own power is really a thrill to behold.

The layouts shown this month were designed for freight cars whose couplers are actuated with movable ramps. In this way, cars can be uncoupled on the "fly."

Layout #1 is an HO gauge pike for a cellar alcove 11½ x 8′ with space under the stairs for a hidden reverse loop. The layout itself is single track with one passing track and reverse loops at each end. It wraps around three times to climb to an elevation of 11". A freight coming into the lower yards first passes the roundhouse but, instead of rounding the lower reverse loop, switches to the



left and circles around again. The road engine cuts off just under the high bridge at the top of the drawing and runs to the roundhouse. The hump loco couples on behind the caboose and shoves the train up over the hump. If one of you readers sent me in this layout for criticism I would make quite a point of how bad it is to have the yard lead in a tunnel. It is; but the space limitations of this particular area make it difficult to do anything else. Of course once the humping has actually begun at least six cars will be outside the tunnel, which is likely to be close to the train length anyhow.

Notice that, because of its length, the slope of the yard continues nearly all through the length, although not as steep as coming down the hump itself. It would be nice, if this railroad could ever be expanded, to continue the yard tracks down through the lower right corner, have them merge into departure tracks which would later merge with an extended main line (now a coach storage track) and run on down the cellar wall. Notice also the three-way switch in the hump yard. Three-way switches are considered taboo in model layout designing because they are "special," but a hump yard is one place where a 3-way switch is permissable because it saves the length of a switch (two whole car lengths) on several of the yard tracks. In modeldom, this is important because space is limited. A three-way switch can be built in one evening from a right and a left hand Atlas switch, or you can probably buy one semi-custom made for somewhat over a ten-spot. (See also RMC, August 1946 issue for a how-to-build article on same.)

But we cannot pull out the lower right end of this yard, but must pull out *past* the hump in preference to over it. The blending of grades in this area is apt to be very critical if derailments are to be kept at a minimum. The outbound track goes through that same tunnel, past the turntable, then on up the long grade to the upper terminal of Mt. Miller (where the yard is arranged for *flat* switching, by the way).

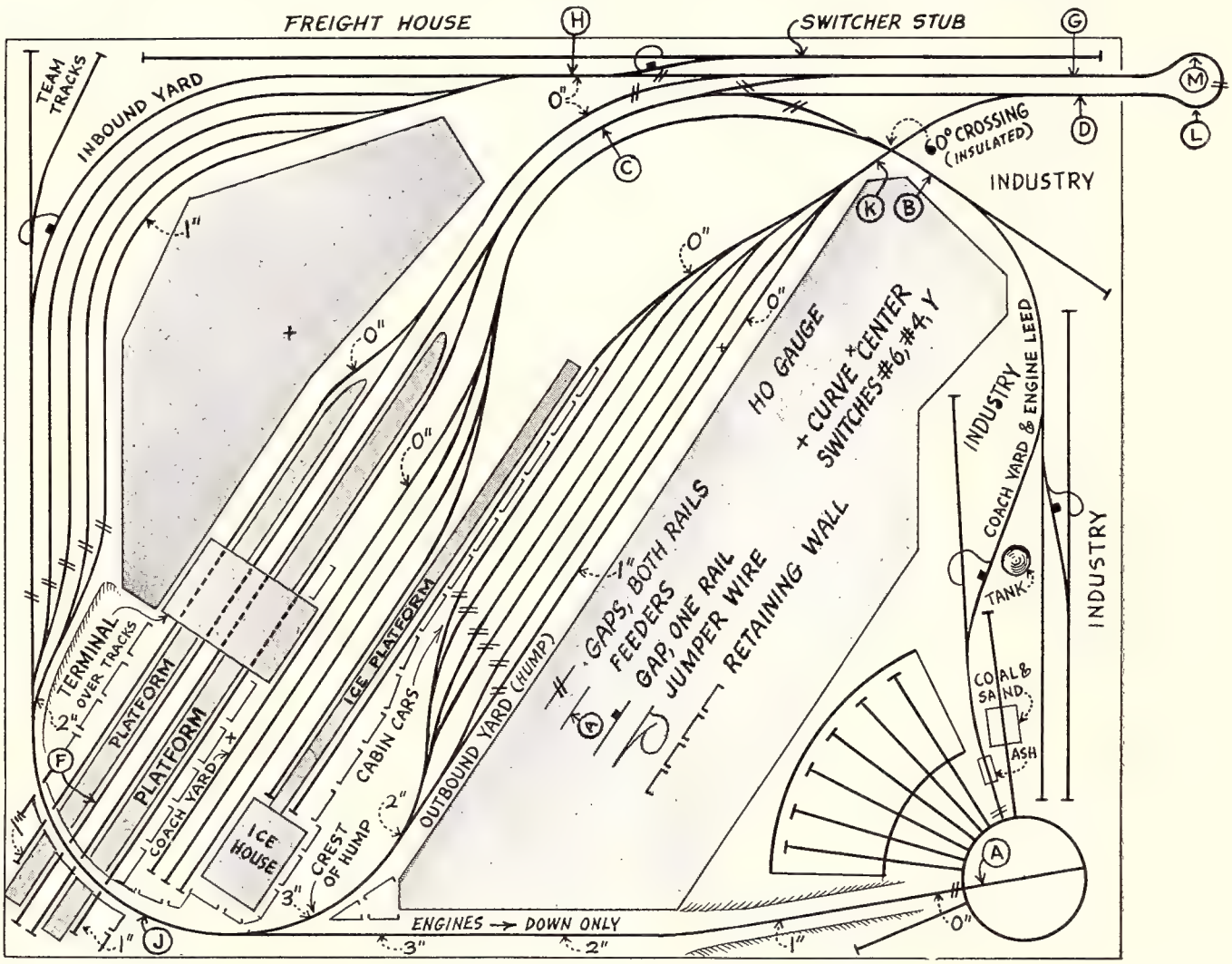
It is not prototype practice to couple the hump engine on behind the caboose, since that car is usually set aside to go back over the division whence it came. Nor is it customary to run the caboose over the hump, but exigencies of the small space available for a model hump yard may demand it in spite of the laments of the little cast lead brakeman and conductor for their spilled coffee-pot and broken lanterns. On this particular layout the cabin cars would simply follow the freight cars down the hump. They would, of course, be at the outward end of the train. This would have to be corrected by one flat switching move before the outbound train took off.

Minimum radius on Layout #1 is 22" Switches are all #6 or Y.

Layout #11 is for the man who likes terminal operation. It is for a space 11 x 9′ in HO gauge with only the lower side open. The double track main line extends to one or more reverse or holding loops in another room (or in another part of the cellar). There is a four track passenger terminal with a four track coach yard next to it. The engine-house lead doubles as a coach yard switching lead.

Freight trains go first to the inbound or receiving yard where the engine cuts off and runs straight ahead, then *down* a steep slope to the turntable and roundhouse. The switcher couples on back of the caboose and shoves the train, car by car, over the hump. The rise to the hump

Layout #11 Overall size 11 x 9 feet in HO gauge. Features terminal operation and many switching moves.

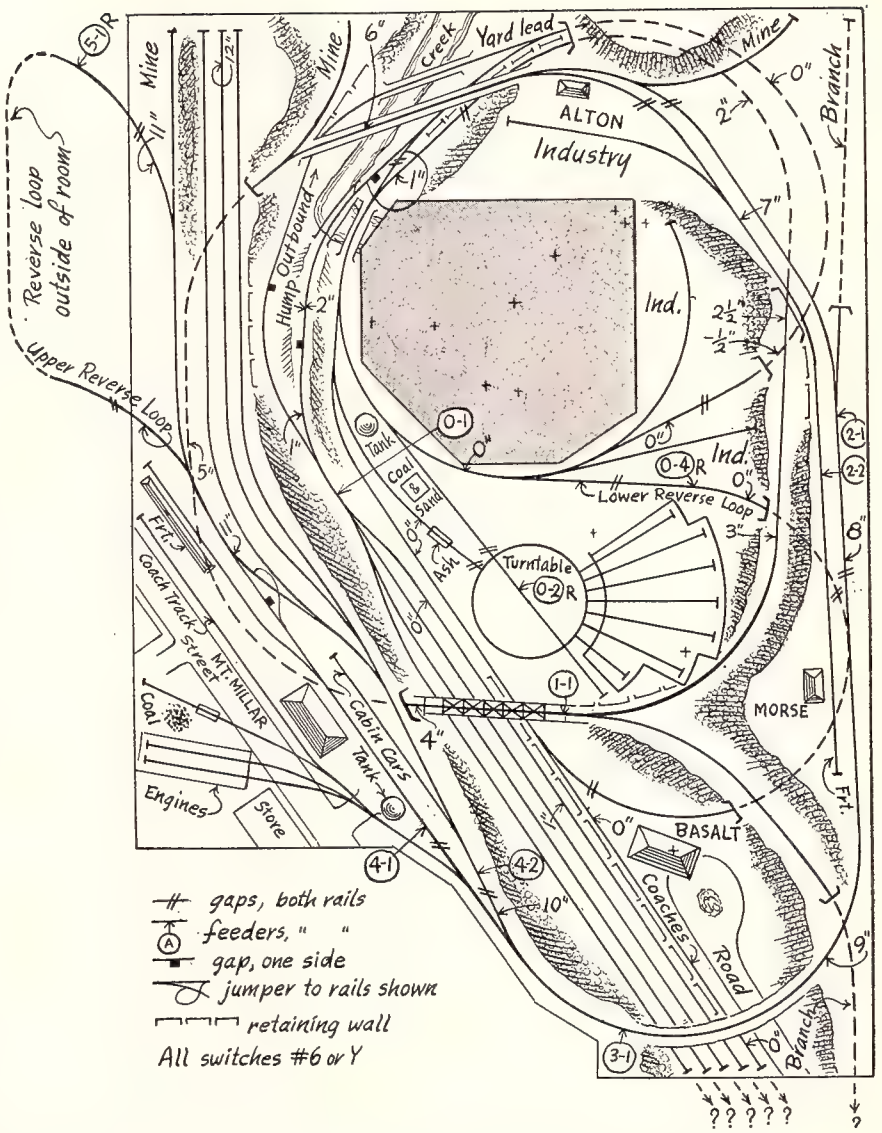


here is, you will note, quite gradual and the drop-off steep. *If possible,* model railroad humps should be designed to drop off from a high level. This saves the space usually necessary to make the rise to the hump and the train-length restrictions such steep grades impose. On this layout, trains pull out the far end of the hump yard without any special departure yard since again there isn't room for one.

Cars coasting into the shortest hump yard track (nearest the coach yard) have quite a succession of switches and curves to go over. These are *not* to be passed over lightly since both *switches and curves introduce extra friction* and so slow down the coasting car. The same grade that will move a loose car on straight track may not do so on a curve or through a switch. Hence the downhill *from* the hump must be steep and long enough to give momentum to get the car through the switches. Usually this means that the grade must be carried *through* the switches. In some cases, *this* may mean that the body tracks of the yard are at different levels by a scale foot or so. That is quite according to prototype practice—the CPR St. Luc yard shown last month has its tracks terraced up toward the center.

Earl thinks, and I agree with him, that car retarders and automatic switch interlocking systems are out of place on a model hump since it is so short that only one car or cut of cars can be sent down at one time. Real hump yards are long enough so that several cars can be in motion simultaneously.

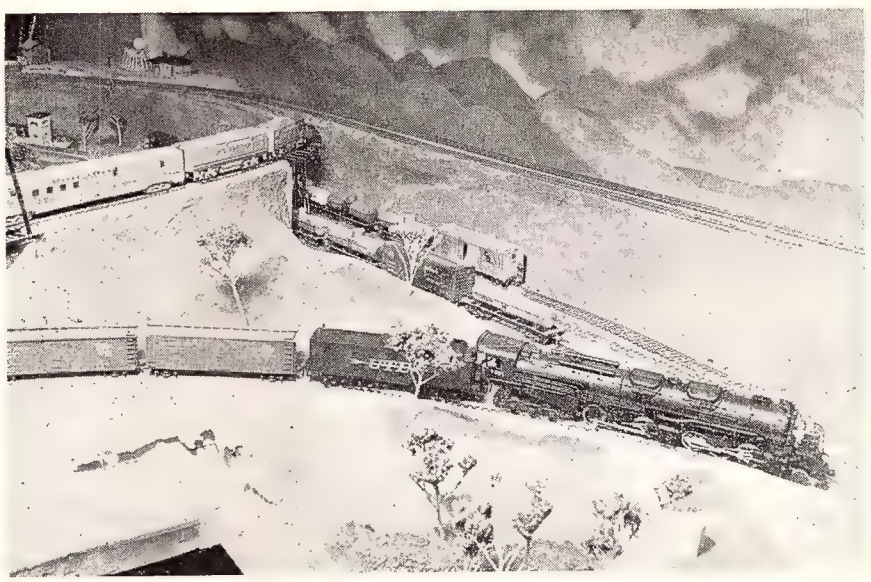
If any readers have any experience or ideas about model (or real) hump yards that have not been covered, please communicate with me. We'd like to publish such comments, including photos or sketches if you have any that seem pertinent, as a follow-up to this present article. For instance, has anyone any ideas on making a working hump-yard with tinplate equipment? Offhand, the uncoupling problem looks tough, but maybe it isn't.



Layout #1 for an HO gauge model railroad with overall dimensions 9½ x 11½ feet. Minimum radius on this pike is 22", switches are all #6's. A single track railroad with one passing track and reverse loops at each end. The one track loops around the layout three times to an elevation of 11 inches.

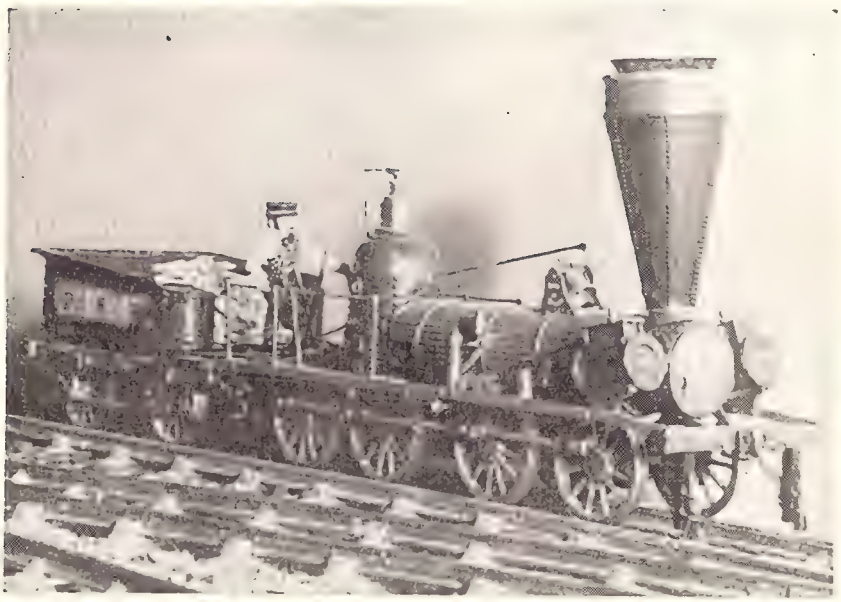
BEFORE removing any of the tiny springs in sprung HO trucks, slip a short length of white thread thru the spring. Then if it drops or flies away, the string will make it stand out on a dark floor. After the spring is off, slip the thread through the coil. Then when you have finally replaced the spring, pull the thread out. They are not expensive, but you usually don't have them when you need them most.—*Morton Dagg*

FLAT wire, if required in small quantities, may be made by squeezing soft copper wire in a vise or smashing with a hammer on an improvised anvil. Of course be sure to cover the knurled vise jaws. Another source of flat wire is staples. Half-round wire may be made by rubbing a short length of round wire lengthwise along a piece of emery paper or a fine, flat file.—*J. L. Kelly*

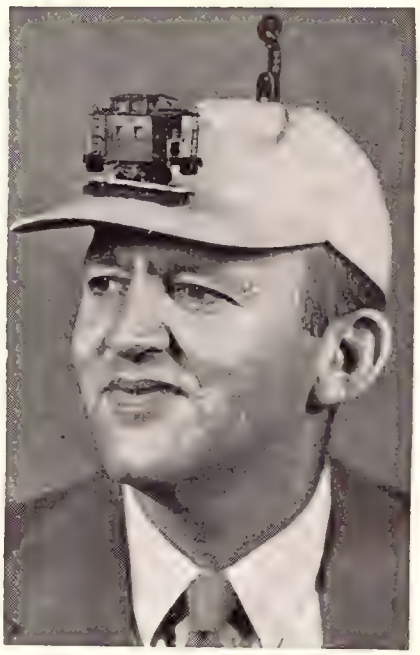


Another view of Earl Cochran's HO railroad with grade to hump yard at right rear. One of the few miniature railroads with this installation.

An HO gauge, non-powered version of one of San Francisco's famous "California Street" cable cars built by Burton Anderson of Berkeley, Calif.



A Baldwin Flexible Beam Locomotive of 1846 built for the Philadelphia and Reading Railroad by U. B. Graff of San Francisco. This is a most unique model, exceptionally well detailed . . . a faithful model of the prototype built to 17/64" scale.



Masterpiece of haberdashery designed, made and proudly worn by M. E. Kern at the NMRA Mid-Eastern Fall Convention. A sure-fire way to publicize America's finest hobby.

An apartment-size HO gauge layout built by V. Stuhr of Toronto, Canada. All equipment is patterned after English prototypes with all detail faithfully reproduced. The landscape is made from newspapers and flour paste, commercial "grass" and balsa wood. The *structures* in background were clipped from a magazine.

The red and white trolley built by Ernest Steen of New York City, rounds a sharp curve in the hill top village. This village is about 10" above the rest of the layout. The trolley is 2-rail, but the overhead wires carry the juice for the house lights. Note that the trolley car carries a European type pantograph, which is just as well because it saves the trouble of changing poles at the end of the run.

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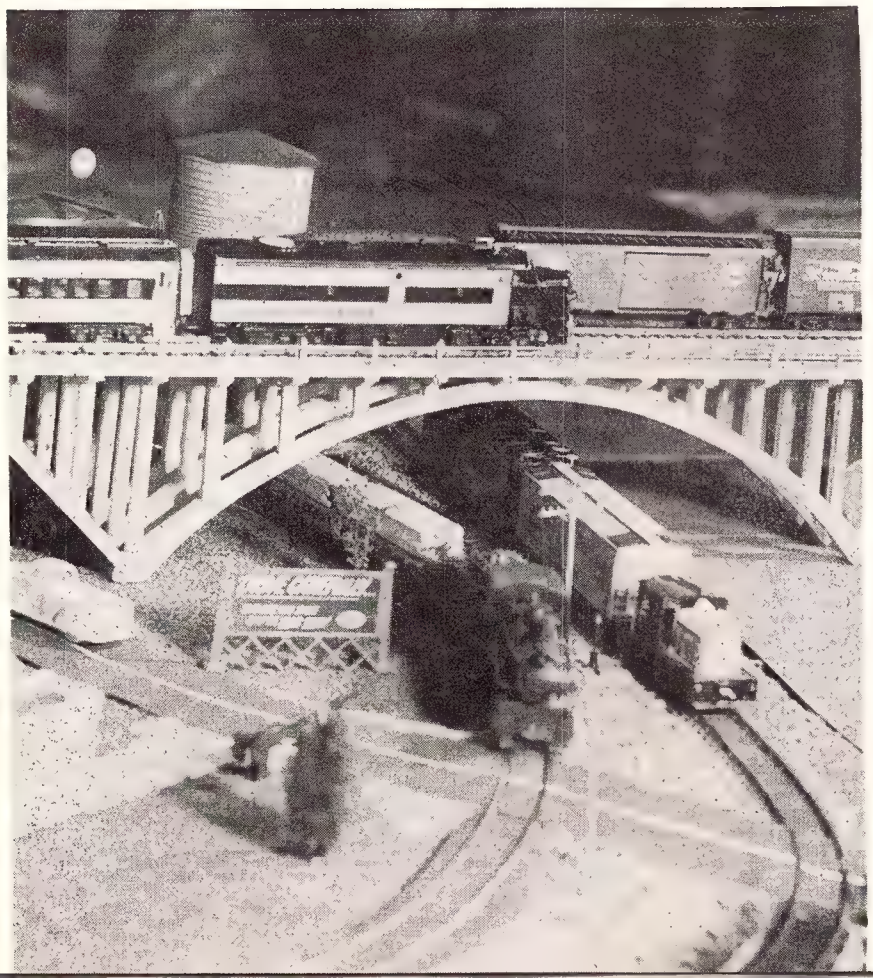


Scene on a progressive HO gauge two level pike. Note the protected grade crossings and the planking between rails. The bridge spanning the main line is of pine strip and Bristol Board Construction. The Bridge is exceptionally well detailed, complete with guard rails.

Simple Wiring

by Richard Houghton

Basic electrical information necessary for a successful model railroad. An introduction into the mysteries of electricity and how they are applied to the hobby. Easy to understand data concerning a specific layout.

NO one has ever seen electricity or solved all its mysteries, but almost anyone can be a model railroad electrician.

Many who might try are afraid to start. Even if your electrical experience is limited to plugging in the toaster at the breakfast table, don't let the possible complications of electrical circuits keep you out of model railroading. Wiring can be simple.

Illustrating this article is a wiring diagram for the small but versatile track layout Slim and I built for display at county fairs and hobby fairs and described in the October issue of RMC. It allows operation of two trains at a time, independently of each other. There are five holding tracks where one of the two trains can be halted while a third train moves past it.

The diagram shows only the essential minimum. The mainline and the spurs could be lengthened into a large and seemingly complicated layout, depending on the area available, without adding to the basic wiring shown here.

As explained last month, if the portion of this layout from W to X is hidden (in a tunnel or otherwise) the effect of two-way mainline operation on the visible parts of the layout between Y and Z can be achieved. With the aid of uncoupling ramps and automatic couplers, an almost limitless variety of remote control car set-outs and pick-ups, and reshuffling of cars in trains can be accomplished, and trains can change engines without being touched by hand.

The way the layout has been wired in the drawing is commonplace and time proven. If switch points will make good electrical contact with the rails, you'll have an operating railroad which will do all the things described above. Its reliability can be improved, however, as will be described next month.

First, for benefit of those whose electrical experience is limited to plugging in the breakfast toaster, let's review the fundamentals of electricity that will make the diagram understandable. The following is an outline. Any public library can furnish books to fill in the details.

Electricity is a form of energy, a speed-up of electrons. Individual electrons are too small ever to be seen, but in teamwork they are powerful enough to drive a battleship, and fast enough to flash a signal around the world in a fraction of a second.

Your 110 or 120 volt household wiring is not to be played with by the inexperienced. It can kill you or burn the house down. But after it has been tamed in a transformer or power pack it can be more easily and safely controlled, and can be channeled along wires and made to do useful work in conductors of special shapes, sizes or materials, such as coils, filaments or liquids.

Metals are the best-known conductors. Silver, copper and brass are high on the list. Some salty liquids are fair conductors, such as salt water. Non-conductors include such materials as air, rubber, plastics, paper, cloth, dry wood, mica, varnishes, some paints and dry dirt. Non-conductors which separate conductors or surround them protectively are said to insulate the conductors. Dirt or grease on model rails or pick-up wheels may insulate locomotives and track from each other. They must both be kept clean if you want your trains to operate well.

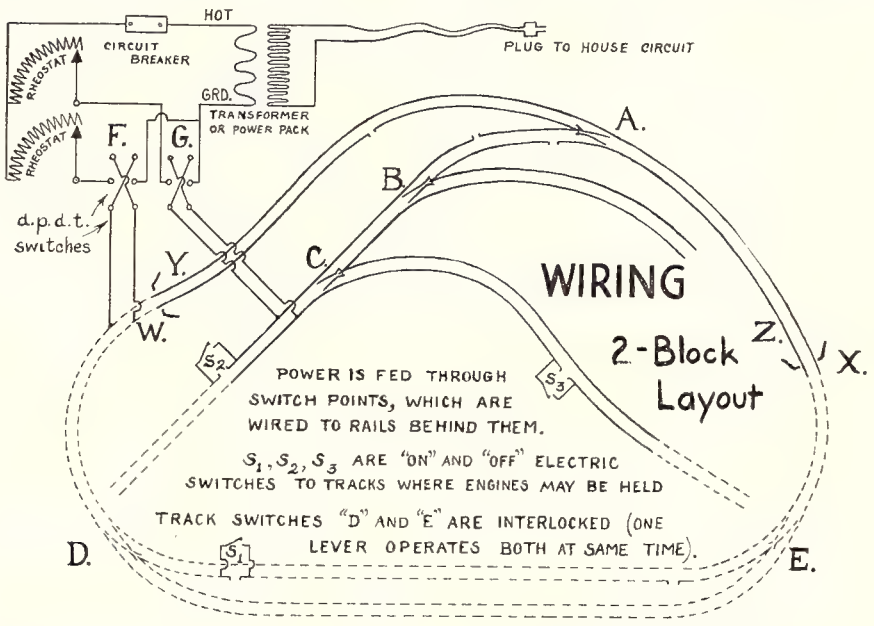
Electricity is propelled through a conductor by an electrical pressure whose unit is called a volt. Voltage is sometimes likened to pounds-per-square-inch forcing water through a pipe—the "pipe" in the case of electricity being a wire or other conductor.

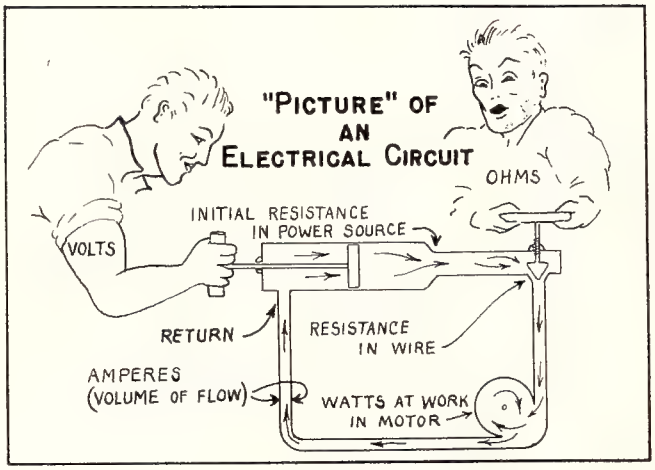
To some degree every conductor hinders the passage of electricity through it, somewhat as roughness or smallness inside a pipe restricts the flow of water. The unit of this electrical resistance in the conductor is called an ohm (pronounced like the "ome" in "home"). Just as a small pipe is more resistant than a large pipe, so the number of ohms in a conductor increases as its cross section decreases. Electrical resistance also is in proportion to the length of the conductor. If you want to send a certain volume of electricity through a wire, and it is to go a long distance, you should use a larger wire than for a short distance.

In order to do work, electricity has to move in a complete circuit, for example out from one binding post of a power pack or transformer and back to the other. It flows only when the circuit of conductors is complete or "closed". It stops if a wire breaks or an electrical switch opens, separating a conductor. Switches (or relays, which are merely switches operated by electro-magnets) can break (open) or close or change circuits in an almost limitless variety of ways.

Voltage at the source of electricity, divided by the number of ohms in its circuit, determines the volume of electricity flowing through the circuit. Unit of volume is the ampere. The amperage of an electrical current may be compared with the cross-section of a stream of water flowing through a pipe. Too many amperes trying to squeeze through a small wire under push of a too high voltage will heat the wire.

The number of amperes, multiplied by the number of volts pressure, measures the amount of energy passing through the circuit. The unit of energy, one ampere-volt, is called a watt. For example, on a 120-volt household circuit, if an electric light has 240 ohms built into it, one-half an ampere of current will pass through it at that voltage, and it therefore will consume 60 watts of energy.





A vivid illustration depicting electricity at work. This is all important to a successful model railroad system.

That one-half ampere is pushed through a tiny filament, which is heated to incandescence. You buy the electricity by the watt-hour (described kilowatt hours because a watt is too small for practical measure by a big electric company). This is a measure of the wattage consumed multiplied by the length of time you consume it.

Because amount of energy passing through a circuit drops as resistance increases, you can control the speed of trains by using a variable resistance called a rheostat. It usually consists of a coil of high-resistance wire, and a contact which can be moved along this coil to bring more or less of the coil into the circuit.

Sometimes a conductor of low resistance may fall across a circuit, by-passing some or most of the resistance in that circuit and causing more electricity to flow than can safely be produced by your transformer or power pack. This is called a short circuit. It may be caused by derailment of a locomotive or car, or perhaps if you forgetfully lay a pair of pliers across the rails of your track. All power sources and wiring should be protected against such accidental overloads by means of an automatic circuit breaker. These breakers usually are built into transformers or power packs used in model railroading, or can be installed separately. They can be reset after the cause of the overload is found and removed.

One result of a prolonged short circuit is heat. It may melt your wiring, set your house afire.

Electrical energy flows between high and low electronic pressures, described as potentials. Theory is that the current tries to establish a balance of electrons, like high and low water tries to reach a common level. In direct-current wiring, one side of a power source may be referred to as having a positive potential, and the other side a negative potential. The difference is the voltage or pressure at which the two electronic conditions are trying to get together and even things up.

There are two types of electrical currents which can flow between high and low potentials, the above mentioned direct current, abbreviated "DC", and alternating current abbreviated "AC". Direct current flows in a steady stream. In alternating current the energy is in the form of waves, flowing first in one direction and then in the other, alternating with each other. Each full wave is called a cycle. If they occur 60 to the second, as they usually do in household circuits, the current is called "60 cycle."

Advantage of alternating current is that its voltage can be changed by a transformer. By means of induction, which need not be explained here, an alternating current of high voltage can be put into one side of a transformer and current of low voltage taken out the other side, or vice versa. In some transformers there is a variable voltage control, taking the place of a rheostat in operating model trains.

A rectifier is a device which allows electricity to flow in one direction only. It is a sort of valve. A power pack is a combination transformer and rectifier. In one side goes household current at fairly high voltage; out the other side comes direct current at a lower voltage.

Advantage of direct current in model railroading is that some types of electric motors, in model locomotives, can be reversed merely by "throwing" an electrical switch on the control board to make electricity flow in the opposite direction through the track circuit. Such a switch is illustrated in one of the drawings here. If its handle is moved to the left the current will flow from wire 1 to wire 2. If the handle is thrown to the right the current will flow from wire 2 to wire 1. Reversing switches may be built in a number of forms—rotary switches or snap switches, for example—but they all work on the same principle.

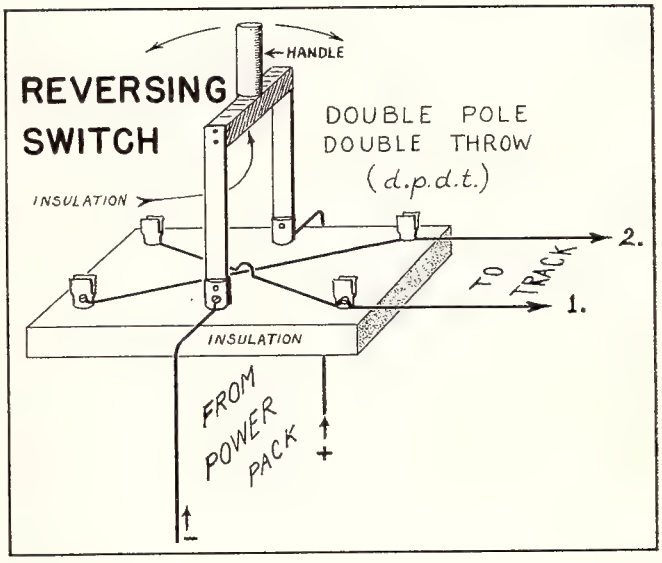
A motor operated by alternating current is not so simple to reverse. It can be reversed by reversing the wiring connections between the field (the fixed part) and the armature (the revolving part) of the motor, using what is called a sequence reversing (rotary) type switch built into the model engine or tender. Tinplate locomotives usually come equipped with sequence reversers. Scale type model locomotives usually are built to operate on direct current, with the reversing switch located on the operator's central control board.

In order to distinguish between the two sides of either a direct current or alternating current source, we will call one the "hot" side and the other the "ground" side. In installing your wire it is good practice to use wire of one color for the hot side and another color for the ground side, or at least to label the wires so you won't have to follow them all the way back to the source to identify them before making your connections.

The wiring diagram shown here is designed for direct current, and we might have labelled one side of the circuits "+" for positive and the other "—" for negative, but in order to make the diagram of equal value to users of alternating or direct current we will call one side of the power source the "hot" side and the other the "ground" side.

Operators of alternating current model railroads, whose locomotives are controlled by sequence reversers, can use the same wiring diagram shown here, or they can omit reversing switches "F" and "G". If the switches are retained, in hope of converting to direct current operation some day, the handles of both these switches should be left in one position, either up or down.

(To be continued.)

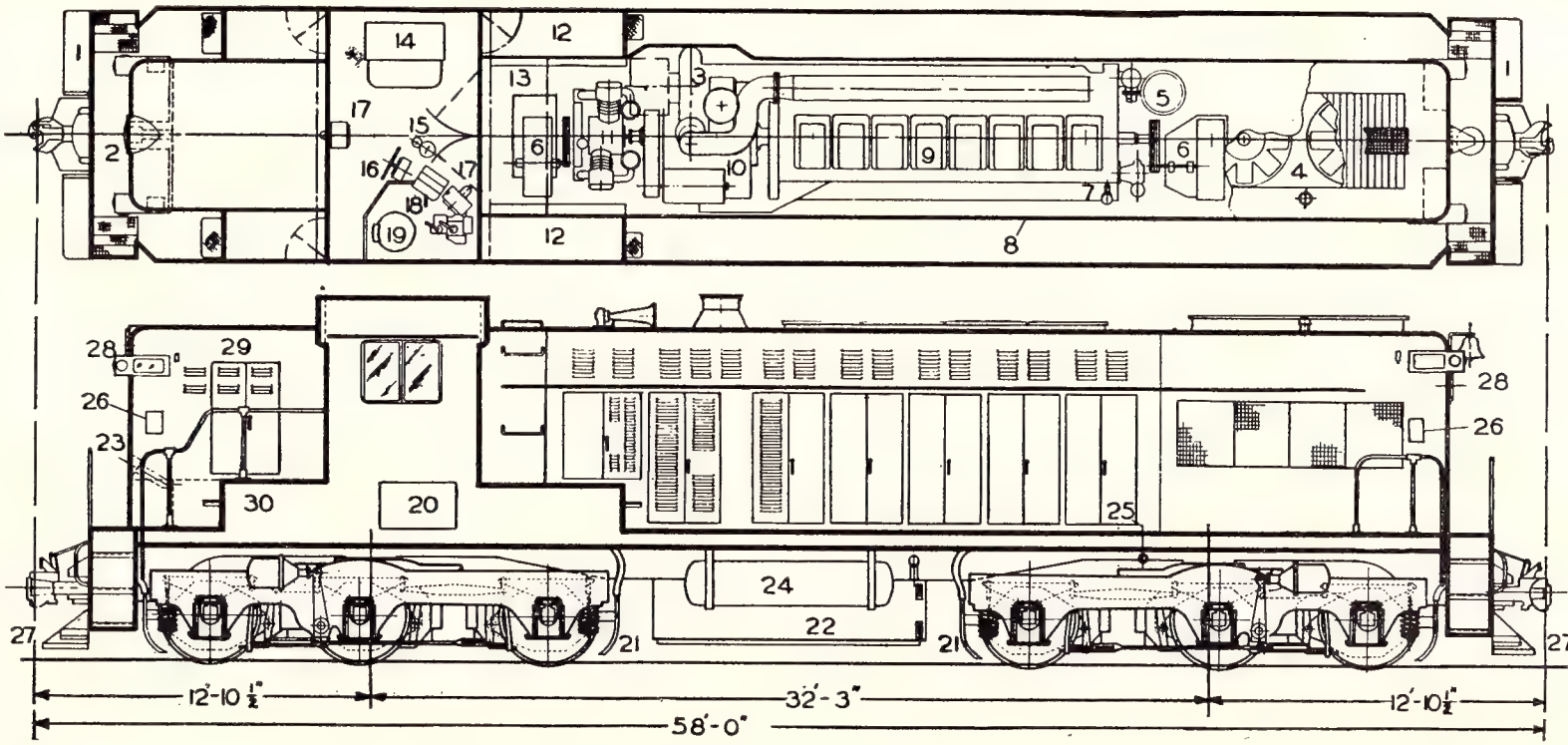


Correct method of hooking up a reversing switch. Complete information on this devise is included with the text.

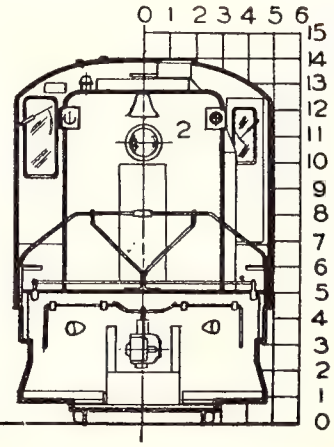
Baldwin 0-6-6-0 Road Switcher

Principal Parts

1. Switchmen's Steps
2. Headlight
3. Supercharger
4. Cooling System
5. Lube Oil Filter
6. Traction Motor Blower
7. Lube Oil Filler
8. Engine Compartment
9. Diesel Engine
10. Main Generator
11. Air Compressor
12. Storage Batteries
13. Electrical Equipment Cabinet
14. Helper's Seat
15. Fire Extinguisher
16. Handbrake
17. Cab Heater
18. Operator's Controls
19. Operator's Seat
20. Air Brake Equipment
21. Motor Truck
22. Fuel Oil Tank
23. Fuel Oil Tank Filler
24. Air Reservoir
25. Water Filler, Diesel Engine
26. Sand Box Filler
27. Pilot
28. Marker and Number Light
29. Rear Compartment
30. Water Tank or Auxiliary Fuel Tank



PLANS SHOWN
FULL SIZE
HO GAUGE



Model of a Model

An interesting, economical project that will save many, many hours and dollars when an actual layout is constructed. Helps in the planning of grades and curves.

by BILL SCHOPP

WHEN Bill Krames, proprietor of the local hobby store, Trenton, N. J., asked me to design a layout suitable for operation in his newly enlarged show window, I came up with the attached idea which you may find of interest. Bill wanted a pike which could be left to run without attention for hours at a time and my thought was that the two trolleys and one dockside switcher (with train) which would inhabit this tiny pike would keep out of each other's way by means of a system of relays and *two* power packs as described in Dec. 1949 RMC.

Further to put my idea across, I constructed the model of a model railroad pictured herewith which you might find of interest. Any model railroad can be modelled along the lines shown if you care to take the time; it's an excellent means to perfect a layout design. The first step is to make the track which I make with drawing ink on white bristol board. A more realistic appearance could be obtained by using gray bristol board, to represent the ballast, and drawing in the ties in pencil. Straight track is of course a cinch, but curves must be drawn to the radius desired and so must switches. If you are using "boughten" switches it will be to your advantage to draw the switches as nearly as possible in proportion to the actual turn-outs you will use. Curves, straight track, etc. must then be built around the switches. If you intend using tru-scale or other unit type roadbed or ready laid track, your completed model will enable you to calculate the footage of straight and of various radii curves you will need.

I suggest a fairly large scale for the model. I used one and a half inches to the foot which makes each one eighth inch represent one inch on the finished model railroad. This will work no matter what gauge you use. Three inches to the foot would make each quarter inch represent a foot on the finished pike and all dimensions would be one fourth their finished size. Another easy scale is ¾" to the foot which makes 1/16" represent one inch.

After the track is prepared, the next step is to build the table or tablework. On the model I am describing, I used a piece of bristol board for the table-top and balsa wood for the underframing. However, good model railroad practice favors, where area and UNportability permit, the open top construction of tablework—in other words, no platform, just cross-pieces with roadbed supported on these pieces by supports of appropriate height for the elevation desired. A "model model railroad," such as described here, is a good thing to build when you intend an open top tablework since you may see that by shifting a cross-piece or anglebrace a few inches an additional or easier support for the roadbed may be gained.

In one and a half inch scale, one eighth by one quarter balsa represents one by two inch wood which is handy to use for your framework. It is cheaper to buy a sheet of ⅛" balsa and slit it up into quarter inch or other desired widths. White pine or other firmer wood may be used instead of balsa. Cement is used instead of screws or nails to fasten the platform together.

Once the tablework and track are assembled, the addition of detail is a matter for the individual. Some time after the pictured model was built, I did add streets of black bristol board, rather poor looking hills of brown wrapping paper, and a building of brown bristol board. Much more detail could be added, with your own ingenuity and time being the limiting factors.

To get back to the two by three foot HO gauge layout pictured, the intention was to operate over the railroad track a dockside switcher with two or three cars. It would run in one direction only, up a relatively easy grade then down a very steep one. Two four wheeled trolley cars would amble around the trolley tracks in opposite directions, one taking one route, and another the other route. The crossing would be a stock Midlin crossing, while the two trolley switches would have to be built up and would be pointless.

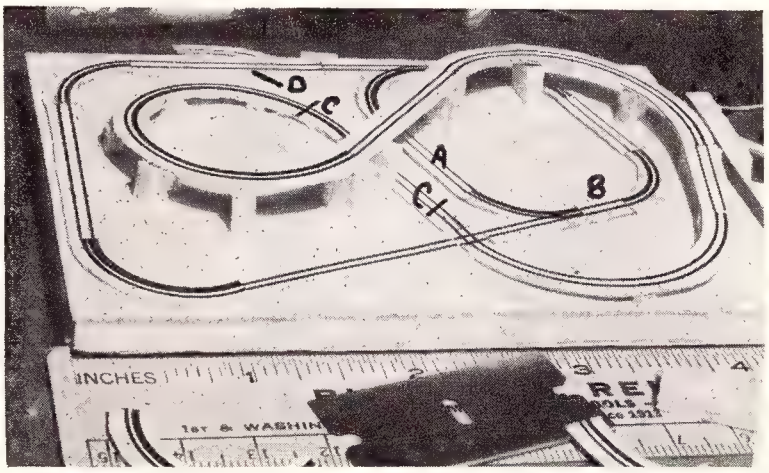
Of course with four inch curves on the car line and six and seven inch curves on the railroad, all these curves would need guard rails since the model vehicles would doubtless proceed at more than a scale clip.

The high point of the small layout, which was designed for *exhibition,* not realistic operation, was to be the meets between trolleys and train. On the photo there are marked four stopping sections, lettered A, B, C, and D. The counter-clockwise trolley waits at section A for the clockwise trolley to get off the single track at the right. But perhaps the clockwise trolley is waiting in stopping section B for the railroad train to clear the level crossing. Stopping section C must be quite a long one for the railroad train since it is on the steep downgrade. It is meant for use only when a trolley has sneaked out on the crossing, disregarding signals, or when a car has derailed or dewired on the crossing.

Speaking of dewirement, by the way, in order to avoid wirefrogs at the switches, I would suggest using a double wire around the right end of the trolley loop. Thus each trolley pole would have its own wire.

A layout such as this, with triple meets automatically made in the front would doubtless stop traffic on State Street, I told Bill, with people waiting and waiting for the collision which never would happen. And even should it happen due to an Act of God, he would doubtless get a good free plug in the local papers—TRAIN SMASHES TROLLEY even though the hum of a trolley wheel hasn't been heard in this town since 1940.

But should you want to build this pike for your own amusement, doubtless Manual Control would be even more fun than automatic. Each of the four stopping sections lettered should be connected to the power supply via a pushbutton which could be either normally on or normally off. The four push buttons could be arranged to form a "console" and I believe you would have a rough time before you got the rhythm that would permit you to make your meets without collisions. Manual control such as this would also permit the making of much closer meets—much more narrowly averted collisions—than automatic control would allow. But then my theory always has been that the most exciting times in model railroading are when you have the closest "near misses"—which makes some smash-ups inevitable, and relatively harmless to the equipment involved.



A few scraps of card stock plus some leisure time will produce a simi.ar "Model of a Model," a clever device to help you visualize clearly a future model railroad.

Along the Tinplate Track

with Louis Hertz

The Golden Age of Tinplate

IT would seem that almost every branch of human endeavor has a distinct period that enthusiasts look back upon as the outstanding era of their craft, hobby, profession, or industry. Time, of course, blunts the sharp edges and often leaves only the brighter memories to entice us into nostalgic reveries. We hear people speak of Caruso and the golden age of the opera; of the golden age of the automobile; of the steam locomotive; of this and that. Inevitably, tinplate too has its golden age; in this case almost universal consent designates the period as roughly the 1920's. Despite a natural leaning toward the particular trains that were being produced when we first became aware of miniature railroads—whether in the early 1900's or the mid-1930's, most enthusiasts who are interested in the yesterdays of their hobby are more or less willingly drawn to the 1920's as embracing what from many standpoints were the brightest years of tinplate production and its accompanying lore.

Yet, in truth, it is not merely nostalgic memory alone that makes the 'twenties seem so outstanding. In this period in one respect tinplate trains came of age; in this period, too, the models for the most part reached their largest size and degree of elaboration. True, most models of today are more realistic; more to scale, and offer features unheard of by most fans a quarter of a century ago. The 1920's did, however, bring into being, or at least widespread popularity, such now basic features as remote control reversing and remote control of switches. The same prosperous, indeed opulent times that saw, for example, the 265 horsepower Dusenberg, saw also a plethora of de luxe tinplate locomotives, cars, and accessories. If some of these designs continued into the 1930's, it was only because they had been tooled up in the 1920's—as we have seen in previous articles, the early 1930's were largely notable in tinplate for the understandable swing to the cheapest models possible, although Lionel did introduce their 400E Standard gauge 4-4-4 steam type in 1931, and there were a few other notable exceptions. Actually, even more elaborate models, such as the big St. Paul electric types, the handmade samples for which can today be viewed in Lionel's New York showroom display, were regretfully laid aside in the blueprint or sample stage.

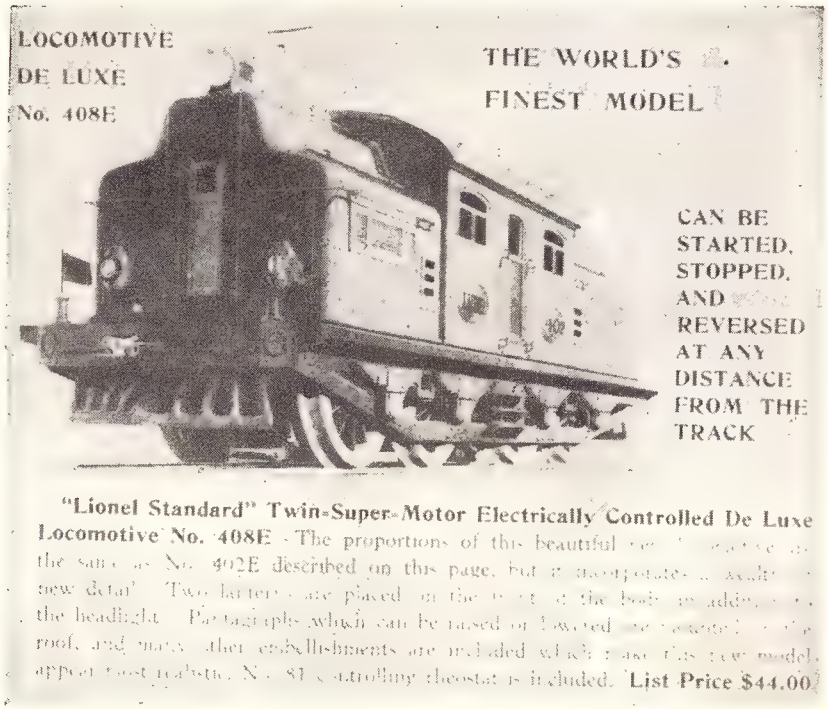
The 1920's were the rich years of Standard gauge supremacy; of the Boucher 4-6-0 and 4-6-2 and Blue Comet coaches; of the American Flyer 4-4-4 electric type locomotive and the 19" passenger cars that made up the "President's Special;" of the Lionel 402 and 408E Twin-Motor locomotives, the big cars with interior fittings; the Dorfan 4-4-4 Pennsylvania L5, and, of course, last but not least, the ultimate flowering of Ives' more than fifty years of model train making that resulted in such locomotives as the 3243 and 3245 4-4-4 electric types, the 4-4-2 No. 1134 steam type, and its equally famous O gauge counterpart, the 1122.

It was the era of special de luxe finished train sets, notably American Flyer's chromium plated version of the "President's Special," the "Mayflower," and Ives' nickel and copper plated O gauge "Major H. O. D. Segrave Special De Luxe" and its curiously coincidently ill-named 2⅛" gauge counterpart, the "Prosperity Special." The last two sets were 1929 innovations, and by Christmas of that year, prosperity had taken on a somewhat different complexion.

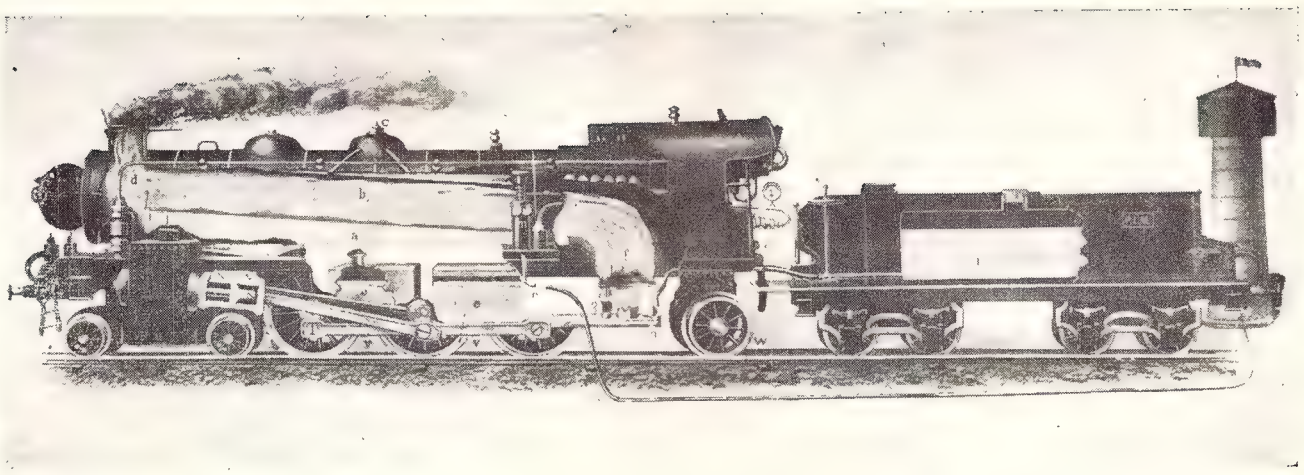
American Flyer, Boucher, Dorfan, Ives, Hafner, Lionel—those were the leading names of American tinplate in the 1920's. Hornby, too, for almost no sooner had we concluded last month's articles on clockwork trains, than we recalled that it was the American-made Hornby line of the late 1920's that led the way in stamped-metal body clockwork locomotives. Plenty of imports, too, not only British Hornby sets to some extent, but also quantities of Fandor, Maerklin, and other German makes, including what must have been virtually shiploads of Bing trains, cars, and accessories.

Imagine a period in which you had to have some seven or eight different manufacturers' represented in anything that purported to be a representative assortment of current tinplate trains; a period that offered the biggest and, proportionately, the most expensive tinplate trains ever in regular quantity production; a period that offered the greatest variety of designs within a specific gauge or series—between American Flyer, Bing, Dorfan, Fandor, and Ives you could select any of some thirty-odd different heralds of O gauge 6½" box cars alone . . . ; a period that offered a full range of clockwork, electric, and live steam sets; imagine all this and more, and picture it as the reality of tinplate in the 1920's.

It was perhaps only natural that the 1920's should see truly elaborate models put into production—not the special copper and chrome jobs, but the top stock models of the major lines. These single sets retailed—at the dollar's buying power of the 1920's, remember—from around $75.00 up to and into three figures. These prices are mentioned merely as an historical note, and we do not



When Lionel introduced their Standard gauge 0-4-4-0 Twin-Motor No. 408E locomotive in 1927 it was considered the last word in tinplate motive power. This shows its first listing in the advance catalog for that year. The earliest models were finished in the Lionel tan known as "Mojave."



Here's the inside story of a de luxe Maerklin No. 1 gauge live steam Pacific type of the 1920's. The model shown here was designed after a French prototype and featured a single large tube within the boiler. The tank in the tender held a reserve supply of alcohol for the lamp; water for replenishing the boiler was to be pumped in from an outside source when required, by means of the hand pump mounted on the running board just over the rear drivers.

propose to enter here into any of the devious pros and cons that so often delight the hearts of a group of fans when they meet and start discussing the comparative quality or value of old versus modern tinplate trains. There is attraction enough in these old timers on a purely nostalgic basis, and this factor must of necessity enter into any calculations on the subject.

Not that the intriguing aura that inevitably lingers over the trains of the golden age of tinplate clings to the de luxe sets alone. As we pointed out last month, it was the little wind-ups that led the way in sheer force of numbers, and following after them, the lower priced O gauge electric sets. How many present-day model railroaders, scale or tinplate, cut their teeth, so to speak on an American Flyer 1096 or 1218; a Dorfan 51; an Ives 3250 or 3258, or a Lionel 248 or 252, cannot even begin to be calculated. The numbers of lower priced Standard gauge sets that the major companies turned out must also have been pretty terrific: the square cab Ives 3235 and the Lionel 8; the Lionel 10 and 318, and the Ives 3241 and 3242. These were engines seldom featured in ads, where the tinplate giants of the day usually caught the eye, but they were the locomotives which went into tens of thousands of homes each year. "It was a glorious thing," someone once told us, recalling his boyhood locomotive. Indeed, they were all "glorious things."

In retrospect, most fans are likely to recall most of the famous locomotives of the golden age as being made at the same time, but actually this was not the case. The Ives 4-4-4 3243 appeared in 1921 and the Lionel 0-4-4-0 402 in 1923, but the Lionel 408E 0-4-4-0, the first American Flyer 2⅛" gauge 4-4-4, and the Ives 4-4-0 steam type did not come out until 1927, or the Ives 4-4-2 steam type and the Lionel and Ives 4-4-4 St. Paul models until 1928, the last year that Ives cataloged the 3243. Actually, when the 1920's opened, many of the engines in production were models more typical of the previous decade, such as the Lionel 0-4-4-0 No. 42, whose era was discussed in this department earlier this year. The Ives 3243, perhaps the most famous and certainly the best-loved and best-remembered of the old electric types was, of course, the locomotive that paved the way for the subsequent developments that made the golden era so outstanding.

It is impossible to mention all of the locomotives, cars, train names, new features, advertisements and promotional slogans, and so forth that stand out today in memory to make the 1920's so memorable in tinplate history. Merely to touch upon the period brings to mind a flood of major and minor points that seem worth mentioning, and so it is, we suspect, with most readers. A few that have never been touched on in the past may, however, be spoken of briefly. What, for example, was so fascinating about the Mojave Desert to American tinplate manufacturers of the 1920's? When Lionel brought out the big Twin-Motor 2⅛" gauge 402 in 1923, they created a new color for it and its cars, a tan officially designated by Lionel as "Mojave" and so stamped as the color code on the boxes of countless Lionel cars and locomotives of the 1920's—all of the 402's, many or most of the early 253's and 254's in O gauge, and the 8, 10, 318, and 408E in Standard. There were also some mojave 380's and even a few late 42's. Most, if not all of the Lionel colors of the period were more prosaically named —"dark green," "maroon," etc., and if memory serves us right, "Mojave" was the only romantically named one of the lot. Certainly it is the only such color that fans seem particularly to remember.

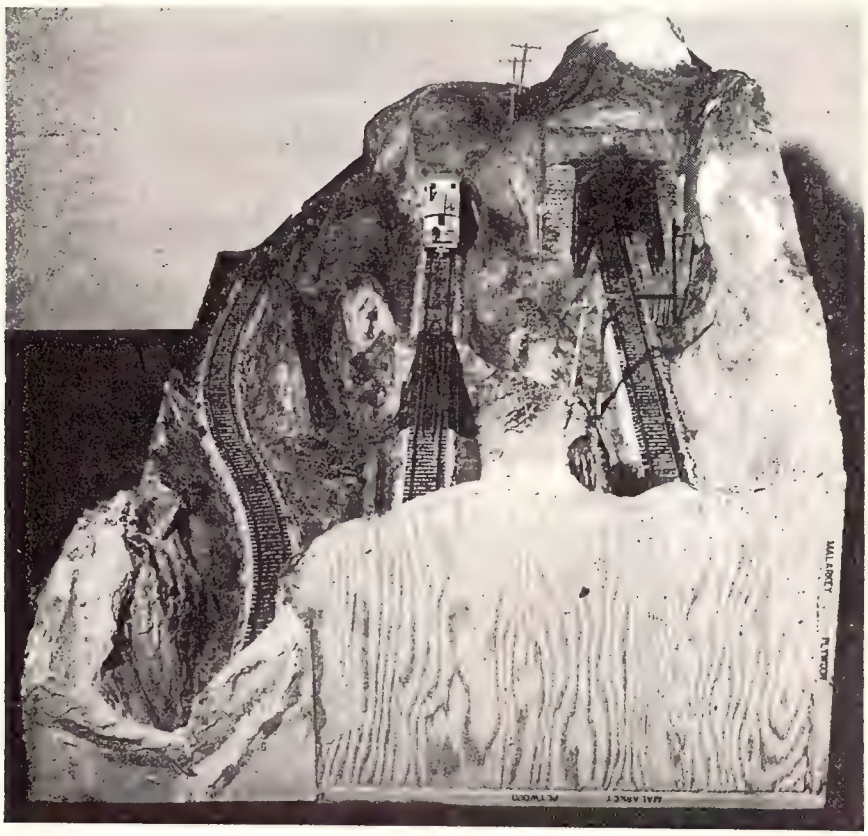
There was evidently something seductive to tinplate manufacturers about the Mojave, because in 1928 Ives brought out two complete O gauge trains, one hauled by the 4-4-0 No. 1120 steam type, the other by the 3257 St. Paul electric type in which the passenger cars were "finished in gray with black mottled effect simulating an alkali dust-covered

(*Continued on page* 45)

One of the most famous tinplate catalog pages of all times—that from the Ives 1926 and 1927 catalogs showing the array of twenty-three different heralds offered on the O gauge box cars. In addition, both sizes of car were also put out in M.D.T. lettering as refrigerator cars.

Storage Space For Sale

by ROBERT HEGGE



NO space for a layout? You can still build rolling stock to your hearts content and display them to full advantage. Here's a solution I devised and for less than $10, and it will fit on top of a desk or dresser.

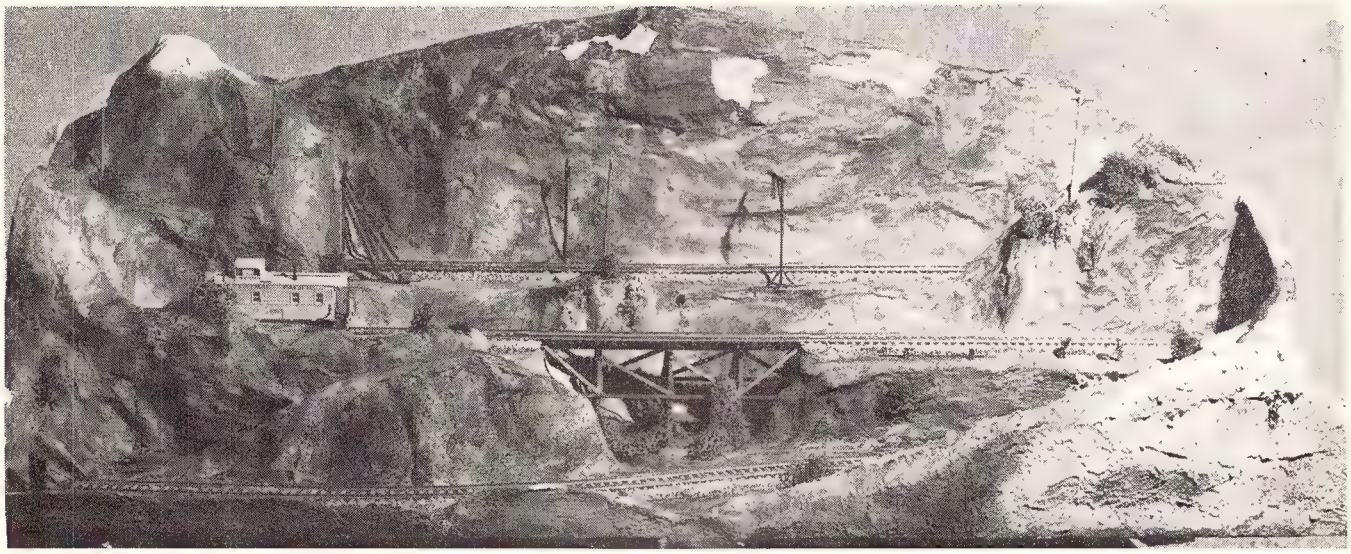
The wood frame is built up from ½" plywood and is 36" long by 18" high and wide. When first built, I only had two tracks but the display was enlarged as the rolling stock increased. The extension included six inches of earth and one reverse curve at the bottom made from plywood with ends fashioned from cardboard. The complete project will hold about 20 HO cars.

The model is built from small sections of newspapers and larger pieces of brown wrapping paper. The paper was left in a solution of cold water starch over night then applied over forms of cardboard and strips of wood bent to the correct shape.

After the paper was dry, modeling plaster was painted on with a small paint brush to about one eighth inch in thickness. This would dry in about twenty-four hours.

Atlas track having been layed, the plaster was painted in various shade of brown, red, and green. The overhanging

Side view showing one-half inch plywood framing and cardboard extension at front.



Overall front view of storage panel. Scenery consists of mountains on three sides, bridge, tunnel portal and the usual lineside accessories.

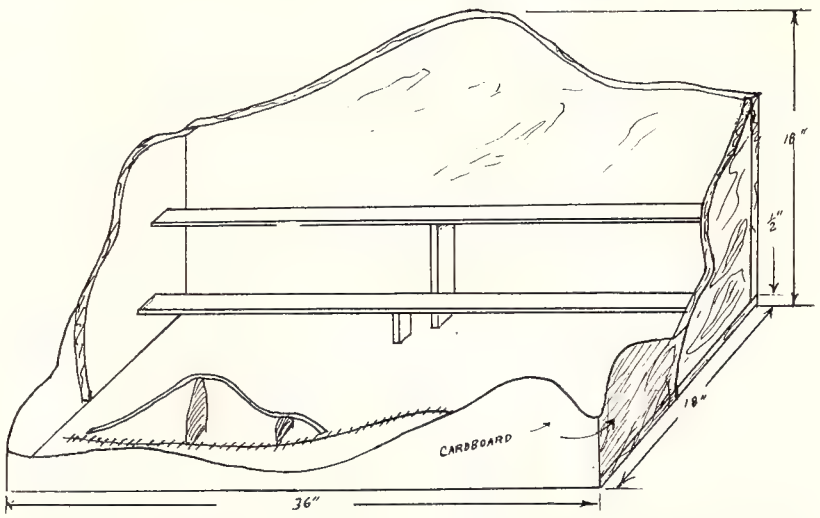
rock formation that serves as the background is painted a slate grey. The effect of pieces of slate having fallen off was gained by the impact of a basketball coming in contact with said mountain by accident!

On large areas I prefer to use the wrapping paper in large pieces as it works much better then newspaper. However the mountain on the left is built up from very small pieces of newspaper as this is easier to work into sharp and rocky formations.

The rear view shows the manner in which the newspaper is lapped over the board to make a stronger mounting. Wrapping paper as well as the news type is used in the construction.

Boards are nailed and the whole project is kept as simple as possible. The rough outline is sawed out on a bandsaw. The rougher the outline the better. The rear could also be painted and a large sheet of paper would be used to cover the back of the model.

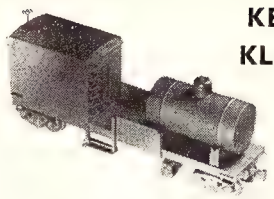
The side view shows construction of the mountains and huge rocks located alongside the reverse curve. The width is 18" and in my model is built from plywood and the added piece is cardboard.



It would be better of course to make the side from one piece of ½" plywood. The whole construction job when finished is viewed only from the front. No attention at being "neat" is shown at the sides or rear.

In the center between the top and middle track, note the small black culvert from which *water is spilling.* This is made from a large soda straw and the water is airplane cement. Such simple detailing helps to catch the eye and makes the rolling stock appear more realistic. If you're cramped for space, try building one of these displays. You too will be pleased with the results.

Rear view of panel. This is a solid sheet of plywood, cut to the contour of the scenery. Newspaper is lapped over plywood for added strength.



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For Those Steep Grades

ONE of the thrilling sights of real railroading is a freight train battling a grade with one or two engines at the head end, a helper cut in ahead of the caboose, and maybe a few more scattered through the train. I have, however, never heard of this being done regularly in HO or any other gauge.

One problem is keeping the front and rear engines (let's keep it simple) at the same speed. If the pusher is too slow, it is a drag on the head engine; if it is too fast, it will pile up the cars instead of actually helping them along. It just might be possible with two engines having the same speed characteristics, a grade with wide curves, and free rolling heavy cars. Possibly some kind of radio control on one or both engines might enable you to do it by great concentration.

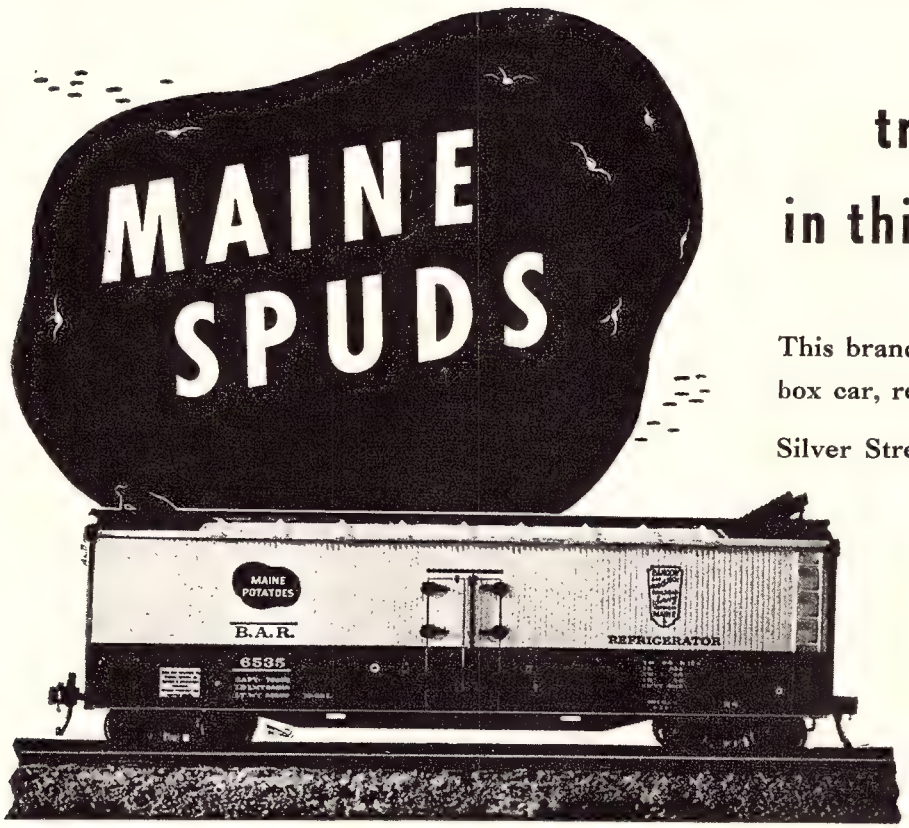
Another problem is couplers. Many widely used automatic couplers uncouple when the slack is run in and that is exactly what would happen if the pusher engine really pushed. Consequently you would have break-in-twos if you didn't have wrecks.

Usual model railroad practice is to put the helper engine ahead of the road engine and cut it off when the top of the hill is reached. It occurs to me, though, that if a pusher is required only for appearance you might make a special weak pusher engine. This would be any standard engine, fairly heavy, and very free-rolling, and with no motor. It would be moved by a Lindsay "Ghost" power truck in the tender with only enough weight for traction to move the engine itself. Going up hill, the "ghost" would slip constantly, but not as noticeably as engine drivers. It would do little more than keep the pusher engine going. When the helper was cut off, the "ghost" would move the engine and perhaps a caboose, not much more. This weak engine would naturally have to be reserved for pusher service only because owing to its drive it would not have power normal to a loco with many drivers powered. Anybody want to kick this idea around?—*Ralph Huchison*

Modeling Handrails

REALISTIC handrails can be made up from common straight pins and wire. To cut the straight pins to a uniform size, they can be snipped off with pincers using a piece of stripwood as a guide. The top handrail is then soldered in place while holding a piece of wood underneath each "post" and the rail, thus securing the correct *jumped* position.

Ladderwork, of the same materials, is even more simple. Keep the pins in their original papers and solder the side members in position. The paper is then removed, ends of the pins snipped off and trimmed neatly with a file. . . . *H. Irwin*



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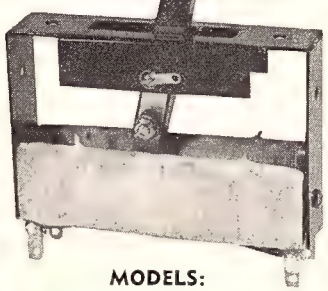

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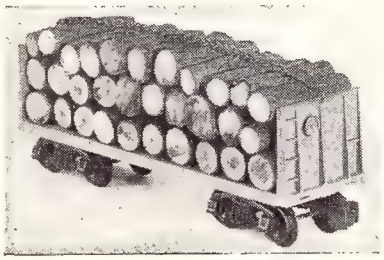

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Converting Tinplate Locos

MANY methods have been devised to tworail tinplate locomotives (RMC for March, page 35) and always the last words are "and then you will have to insulate the couplers." This is a tedious and seldom a permanent job due to the punishment the coupler mountings take. In fact, it often happens that couplers attached by screws directly to metal frame members will in time loosen screws so much that couplers are too low or come off completely.

Insulating the tender from the engine is the same headache. I never do either, instead I insulate the engine on both sides, as suggested in the March article for one side, disconnect both leads to the motor, solder them to small male "gripper snaps," rivet these with small escutcheon pins to thin micarta sheet cut to fit under the cab top at rear of cab sides and act as storm curtain head boards. Mount this in place by screws if possible or by good strong cement.

I then remove the tender trucks and mark them so they may be replaced in the same position if that is necessary. Remove enough metal from the boss on the track bolster, or if the boss is on the bottom of the tender, take it from there to equal the thickness of as thin an insulating washer as you have; 1/64" is thin enough. Bore out these washers (4 required) to a tight fit for insulating sleeves long enough to extend through 2 washers and tender bottom. Sleeves to slip fit screws to be used to remount trucks.

Now insulate wheels on one side of one pair of trucks and the other side of the other pair by drilling wheels to fit fibre or plastic bushings pressed on axles. Reassemble trucks and remount by placing screws head down through bolster, a washer on top of bolster, insulating bushing next, press it into washer, screw and bushing through tender, a washer and a nut.

Tighten, then loosen just enough so truck will swing on "king pin" screw, but will not wobble. Now place a locking nut on top of other nut and tighten without moving first nut or turning screw.

Solder a flexible lead to each pair of these nuts or to end of screws and to the female parts of the snaps, take out through front of tender (make a hole if necessary) snap on to the curtain drop board, put the "bulljine" on the track, turn on the "steam" couple on to your rectifier if you want to for your entire engine and tender that is insulated, is dead.

I have three engines thus converted all ten years or more old and only one case of trouble. That was my own fault; I let the drivers of a Goat get so dirty the juice flashed over the insulating strip under the rim and burned it so badly that the drivers had to be re-insulated. But on the other hand, I've never had a short in couplers because they are dead. . . . *Fred White*

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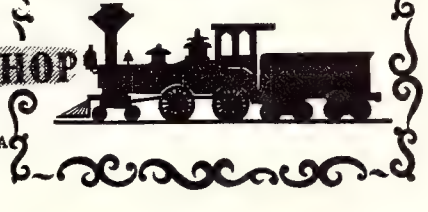

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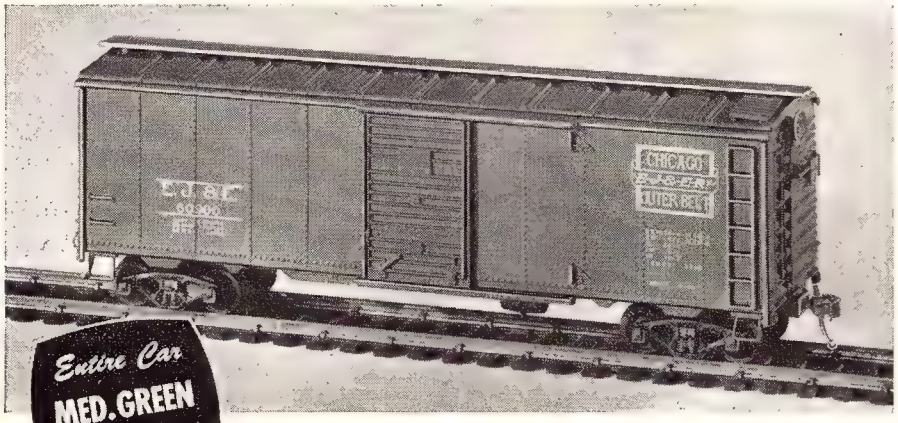

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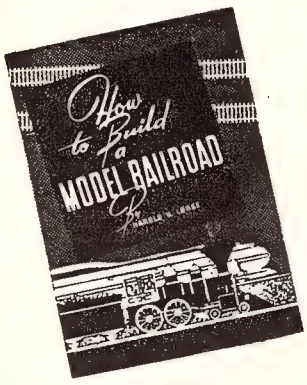

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AND LAYOUT DOCTOR ANSWERS

This Department is for the benefit of all readers. Questions will be answered through these pages or direct by mail by one of the country's leading model railroad authorities. If you have any building kinks of your own, send them in.

Couplers, Fore and Aft

SOME of the railroad locomotives I have seen seem not to have a front coupler. I read a beef in your magazine some months ago about this on model engines, but apparently the real lines also omit the front coupler.

ANSWER: On quite a few road engines now, especially high speed ones, the front coupler drops down and may be covered by a plate so that there appears not to be any. When needed it must be raised into position, which may not be often. One advantage is to keep autos smacked in grade crossing accidents from being impaled: they are more likely to be brushed aside with less damage all around.

Adaptable Power Drive

I AM trying to model a Public Service of N. J. double trucked city trolley in HO gauge from plans in the May '47 issue of Model Craftsman. My problem is how to power the car without the motor sticking up and preventing enough swivel in the drive truck to get around sharp city curves. There are plenty of power units on the market, but their minimum wheelbase is seven scale feet, much too long for this car which has regular Public Service type side-frames . . . *F. G. Lynden*

ANSWER: The essence of such a drive for an HO car is to mount the pulley in the center of the jackshaft, instead of the end, and mount the motor rigidly in the car body with its pulley also corresponding to the center line of the truck. Such a truck will operate at almost right angles to the car body. The problem of replacing the rubber band when required may be met in several ways: (1) have the chasis dissemble with several screws; (2) use a broad rubber band and stitch or cement the ends together; (3) use a very light spring belt which must be carefully cut to length. Try to mount the motor as high above the truck as possible to allow as much length for

the belt to flex as possible. A somewhat similar drive was described in detail in Model Craftsman for March 1944.

If you are a good machinist, you might also try making a drive via a hollow king-pin and an assortment of bevel, spur and worm gears. You might also be able to adapt the chassis-motor truck assembly of the Penna. Scale Model's PCC trolley which will take sharp curves (down below 5" radius) with ease. If you are not much of a workman, try utilizing the power truck from a Lindsay "Ghost" box car. This has the same wheelbase as a freight truck and the side frames can be disguised with an overlay or just with dummy equalizer bars.

Right-of-way Curves

WHEN the radius of a curve is given, does it mean to the inside rail or the outside rail? Also how do you go about transferring a curve from a plan to reality?

ANSWER: The radius means to the center-line of the track.

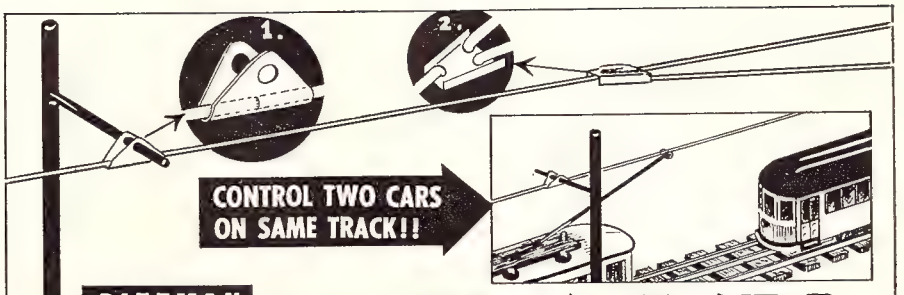
Easy enough to make curves if you use plain roadbed of given radii or even roadbed with built on ties. You've got it, that's all, although you may have to shift it around a little to get it exactly right as to location. For other tracks, figure the location of the center of your circle and drive a small brad there. Then take a yardstick or something similar and drill a hole near one end to fit over this center-brad and another hole say 24" (if that is your radius) further out on the stick, then sketch the curve with a pencil. If the center of the curve is not on your table top, sometimes you can put a stool or table in the open space and locate it there. If center of curve is outside the wall of the room, make a cardboard template of the required radius and move it around until it looks right. For most layouts if you move a curve or a switch a little bit it doesn't matter too much; just try to follow the general idea.

Cutting Card Stock

IN cutting out cardboard car sides for my proposed large fleet of passenger cars I find that the back of the razor blade (double edged) makes my forefinger sore. How do other modelers avoid this?

ANSWER: One help is to pad your finger liberally with band-aids. However, check with your dealer on any of the various makes of hobby knives available. These have replaceable blades in a sturdy handle so that you do not need to use your forefinger to guide the end of the razor blade.

SANDPAPER is a good way to clean a thick coating of grime from the rails.—*E. Hurlbut*



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The entire appearance of this interesting miniature village could be altered with a simple change of Season. This would be a fascinating project, one that would create new interest in your model pike. ***Roadside America Photo.***

Frost on the Layout

by BART CROSBY

SOME rather important additions (scenically) on the New Castle & Frenchtown HO gauge railroad have been the direct result of ideas suggested by my seven year old daughter. Her interest in the model railroad has been very active for several years.

Latest of these small-fry brainstorms was something like this: "Dad . . it rains outside, and snows, and the leaves turn, but on the railroad it's always green. Couldn't you paint the trees like they are in the fall?"

The thought occured to me that most of us, (Your correspondent leading the pack) have perpetual Spring or Summer on our pikes. Why then, could we not have the other seasons as well?

Some years ago I recall reading about an enterprising railroad modeler who, blessed with ample-to-spare space, had his pike divided into three areas, each having practically a season, Spring and Summer, Fall and Winter. It seemed like a good idea but I dismissed it from my mind. However when my youngster came up with a similar notion I recalled this original idea and got to thinking more about it. Soon it became a tangible thing but there were several flies in the ointment. One being that a 7 x 7' pike can't very well be divided into three distinct areas when it's viewed from the front and also the dining room window.

The second sustaining objection was that trains emerging from summer to winter or winter to spring would look quite the same irregardless. So the three season idea was dropped as was the winter scene. It meant far too much work to make it practical . . a complete redoing of all background scenery and a host of other things that predicted ultimate chaos for the short space of time involved.

"Paint the trees . . paint the trees" was all I could hear and finally in less time almost than it takes to write it, the existing trees were sprayed with shades of red, orange and yellow Floquil. On some, color was lavished, and here and there traces of green stood out from beneath the autumn hues.

In three evenings the country surrounding Frenchtown emerged from the green of Summer to the multicolored shades of a fall landscape. Background scenery remained untouched. Some farmers plow fields in the Fall so it was not out of place to see a few acres of freshly turned earth. The distant hills kept their purple tinge.

In the orchards a late crop of apples were being picked and sent off to the apple packing sheds for shipment via Del-Mar-Va Fruit Express Cars.

Now were any trees removed from their original position on the layout. A protective piece of curved tin six inches higher than the tallest tree kept the fine spray of paint within bounds. Shrubs and bushes were given a similar treatment. However, these were soft browns and deep orange. Several trees were denuded of their foliage and only the bare gaunt limbs stood out to the sky.

Townspeople and passengers shed pastel shades of clothing for "warmer looking" garments via paint and brush. Doors on buildings normally open were closed. Wash on the line billowed out to the winds more than ever with Grandpa's red flannels flopping to and fro.

The bandstand in the park was having its storm canvas curtains put up for the winter. Future concerts would be held in the Town Hall, and a late church revival banner was holding its own with an election streamer to "Vote for U. S. Grant, our Next President."

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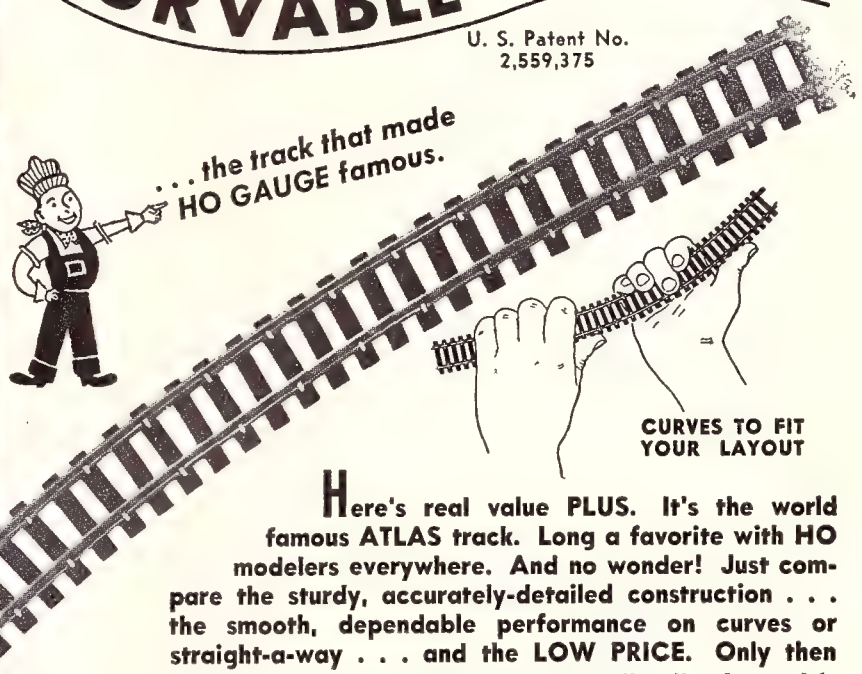

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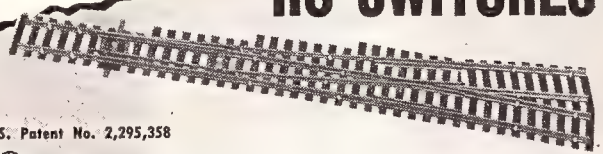

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FROST ON THE LAYOUT

(*Continued from page 34*)

Such a change requires some time but it's not the chore it seems, and it will pay off in colorful dividends.

Perhaps someone reading this article will have some ideas for a winter scene that will not result in a complete renovation of the layout. Bare trees could be substituted for those in full foliage and "landscapers" snow in sheet form could be laid over basic scenery and roof tops.

I well recall the difficulties encountered with the regular commercial Christmas snow on tinplate layouts and how it raised hob with a good electrical conductor on the rails. Cotton too with its lint floating on the slightest breeze will find its way into the worms and gears of our locomotives.

So without too much trouble, a perpetual Spring on your pike may give way to an equally colorful Fall or Winter and by the same token some months hence . . "suddenly, it's Spring!"

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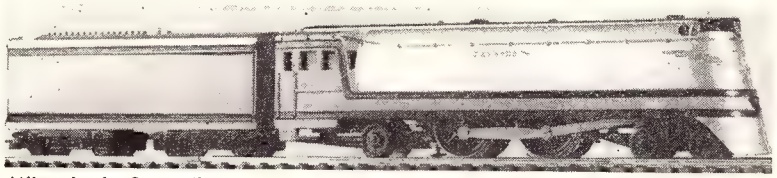

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by HENRY ABRAHAM

THE Summit & Centre Railroad of Woodmere, L. I. is constructed, maintained and run by a club which isn't at all, at least in the customary definition of the word. It is a club only in the sense that it is not an individually owned and operated pike. There are no rules, no officers, no dues, no demerits. The members, if indeed they can be called that, either come on the Monday work nights, or they don't. Nothing is said in either event.

For those who think that such an arrangement might be good for them, herewith is its history and how it operates.

I am the actual owner of the pike and it is housed in my cellar. Back some five years ago, my wife started to go to church on Wednesday evenings. And it wasn't long before the maid took to going with her. Since at the time our son was six years old and the maids child was four, I was left in the unwilling, but completely necessary, position of baby sitter—For which, I might add, I received no pay!

For about a year all went well; there was much work to be done in the cellar and being alone didn't bother me. However, being a social guy, I finally got to the point where some companionship seemed to be in order. But, how to get it?

Reference to the NMRA membership book showed that there were quite a few members in the neighborhood. About 20 postal cards were send out, inviting the receiver to a model railroad "open house" every Wed. night. About seven or eight men showed up. As time went on, some of the original gang dropped out; others, who heard of the club by word of mouth, took their places. Little by little, it narrowed down to the present roster of six. The newest one has been around for about a year; the oldest, three years. One of our real old "members" dropped out recently because his wife was inconsiderate enough to give birth to their first child, not at all to his surprise.

The day time occupations of the "crew" vary widely including a carpenter and writer, draftsmen and a telephone lineman; as for me, I'm an insurance broker. Each person has varied likes as regards the type of work that he does on the pike: each does the job for which he is best qualified.

When a new idea pops into someone's bean, we all get together and discuss its merits, or lack of same. In the vast majority of cases, the matter is settled by discussion and vote. My voice, as owner of the pike, carries no more weight than anyone else's. It is only when serious dissension arises that I feel it to be necessary to settle the matter by stating flatly that we are, or are not, going to do the particular thing in question.

I can only recall one such instance. One of the crew wanted to install an unusual electric circuit and another objected violently. For my own part, it seemed that no great purpose would be achieved; and, after the pros and cons had been fully stated, I said so. The matter was dropped and no hard feelings ensued.

Some of the gang run their own equipment on the O gauge layout. As a matter of fact, one of the members has no layout at all; and so his beautiful rolling stock is always running on the Summit & Centre. There have been occasions when a "member" will bring a car or loco of his own to work on, and will do so all evening, using the tools, workshop and supplies of the S & C. That's permitted too.

We don't operate on timetable, or schedules of any kind. In fact, there are many work nights that we don't operate at all. We give a public showing once a year, during the weekends in March. Admission is charged and given to the Red Cross. Practically the remainder of the year is spent digging up and executing the ideas that were mentioned before; ideas which will interest the visitors and keep them coming back each year to see "what's new."

During these annual shows, several of the members operate, two men are needed to keep the equipment (and visitors) in order and another collects the "fares." One man is kept in reserve to fill in wherever necessary. It all functions very smoothly and we have never had any serious trouble of even a minor kind.

Quite without intentional design, our organization (if you can call it that) has evolved into the best thing of its kind that we know about. It has all of the advantages of the individual and the club, without having most of the serious drawbacks of both. It surely works for us and we think that it can work for others too.

Stippling Landscape

A SCENIC landscape can be greatly improved by *stippling* with paint. The landscape is first given a coat of base color mixed with size to seal the plaster beneath. The stippling paint should be poured in a flat dish and a sponge dipped into it; excess paint is shaken off. The stippled effect is obtained by patting the flat sponge against the surface of the base coat, taking care that the sponge is not dragged or twisted during the operation. After you have loaded the sponge several times, you will be able to judge how many times you can apply the sponge without reloading. Count the number of applications to each loading and keep them uniform; in this way you will get an evenly finished landscape. Stagger the prints of the sponge, filling in the spaces between later. Any attempt at working systematically in a straight line across a given area will make ridges and detract from the appearance of the finished job. . . . *R. Sleight*

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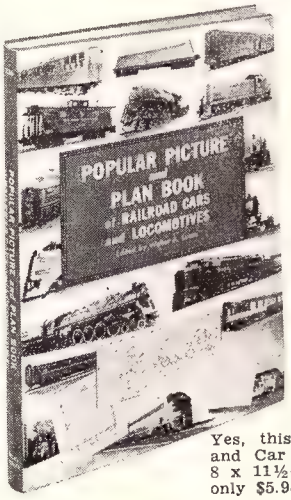

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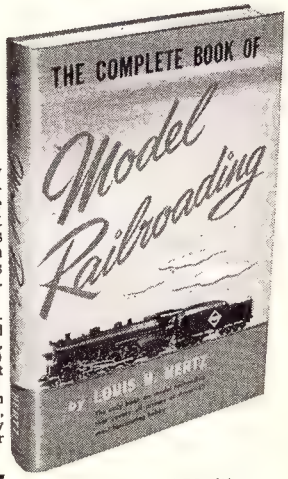

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What's Needed

by BILL SCHOPP

I'd like to start this column on a "once in a while" basis, starting out with my own ideas of what is needed in model railroading but continuing with similar ideas submitted by you readers. What is there that you would like to see marketed in the model railroad field, that is not now available and which you think might sell fairly well? Here's a swell chance to sound off and do the hobby some good in the bargain. Send your ideas to me, care of Railroad Model Craftsman, Ramsey, N. J. I'll see that all sound ideas are published.

1. A booster truck for tenders in HO gauge and possibly in O tinplate. Lew Austin had an article on constructing such trucks in the RMC for June 1950, but how about one in either kit or built up form. Naturally it would not be powered and would replace the rear tender truck of any freight or yard steam loco. These shiny side rods going around under the tender would add interest to an engine.

2. An inexpensive tinplate turntable—made 20" long would be suitable for two sections of either O or S gauge tin-plate track. I mean one without a pit that could be mounted right on top of a platform or maybe with a *flat* metal or cardboard "pit" right on the floor. No motor, just turn it by hand so it could be kept inexpensive. Some clever way of getting power to the table rails would be needed. The price should be kept down to less than $10.00. Had best be metal, but plastic or wood should do quite well as substitutes except that they could not be lithographed. I think this would "go" in HO gauge too for the thousands of fellows who are just starting out and want a table top layout.

3. An HO Shay geared engine in kit form. Because it would be so *different*, this would be an expensive loco to tool up for and quite possibly wouldn't sell enough to pay for the dies. Still maybe some outfit specializing in super-detailed parts such as Budd or Kemtron could furnish truck frames and castings for cylinder-crosshead-crankshaft assembly. Actual gears on wheels could be covered and so would not need to be included. This would be great for logging roads, hilly branch lines, scenic routes, etc.

4. TT gauge track that is easy and *simple* to lay and looks like TT track. Such stapled to fibre ties track and switches have been available, but with the *much too high* HO #100 rail. How about using #70 or even smaller rail so it looks like it was meant for TT? HP rail with Star-Line roadbed makes swell track, but you can't buy *finished* point frog assemblies from HP. You have to buy complete switches (or *un*finished point-frog assemblies), then throw away the plastic ties. It is not as easy to "throw" down as stapled-to-fibre-ties trackage. What do you think, Glynn

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Lewis? Of course with brass almost in the class of gold and uranium, maybe we'd better not talk about track.

5. HO gauge, plastic bents for "wooden" trestles.

6. A *low* wheeled HO gauge 4-4-0. Not a high wheeler for fast running, but a jack-of-all-trades for the one or two iron horse pike. The Mantua Eight Ball Mogul, as a 4-4-0 instead of 2-6-0 would be about right, plus spoked pilot wheels. I wrote up such an engine in Model Craftsman for Oct. and Nov. 1939. The Reading 4-4-0 would also be a dandy.

7. Spoked wheels for HO old-time trolleys and tenders. I know we have plastic ones now, from Mantua's General, but how about spoked ones in metal too? Should have 8 or 9 spokes, 9.6mm. diameter (33"). Could be lost wax castings, probably not too cheap, either.

8. An incline railway similar to Lookout Mt. Incline in RMC for June 1950. This would be a good metals-shortage item since even the rails could be made of wood. Not much metal needed, except maybe axles; could be all plastic and wood. Such an incline railway could be added by many a modeler in a very narrow long space. Maybe he could run it from the floor up to his table top.

9. Wooden or plastic step-section for HO, S and O gauges. What ever happened to Varney's milled wood step-section?

10. In HO, a Forney type engine such as a 2-4-4T. Should be great for the semi-old timers, and could be a double threat for both standard and narrow gauges just by changing the frame, drivers, and cylinder block. Since metal shortages make any new engines sort of doubtful, why doesn't somebody come up with new superstructures for old engines? For instance there are a lot of Varney Docksides and Mantua Busy B's around that, with a new super-structure and a single tender truck, could be made into a pretty fair 0-4-4T. I had something like this in mind when I designed the "Little Louie" (July 1951, RMC) to fit over a Lindsay *Stubby*.

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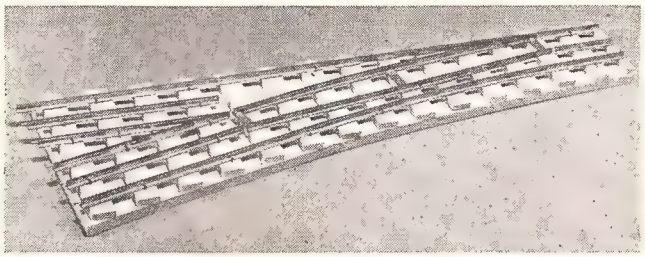

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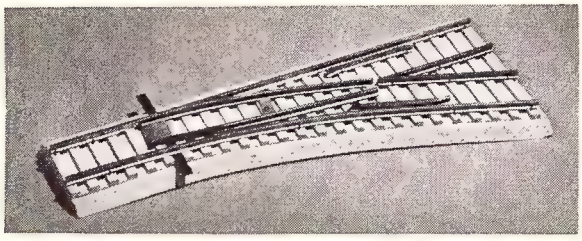

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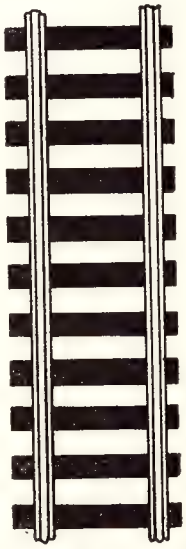

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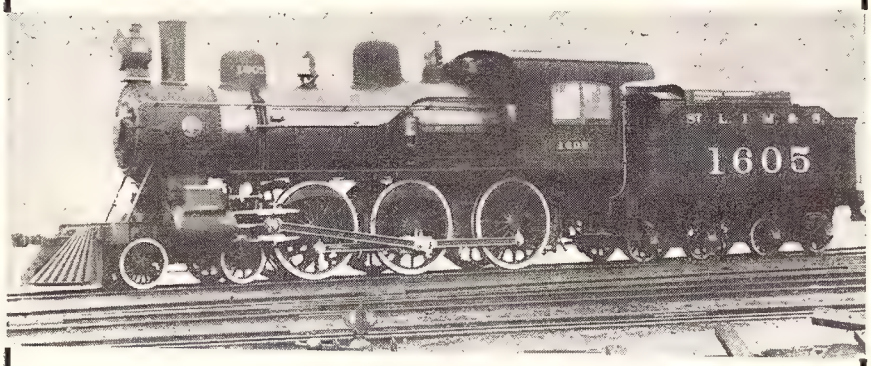

One of the many locomotives to be fully described in the Craftsman by America's foremost model building authority, Edwin P. Alexander.

STARTING with the January 1952 issue, many important changes will be made in the overall format of Railroad Model Craftsman and also many interesting departments will be added. One of these new features will be prepared each month by Edwin P. Alexander. Ed got his start in model building way back in '22 and since that date has constantly pioneered the development of our hobby as we know it today.

Ed is well-known among model builders as the foremost authority on steam locomotives, both model and prototype, and his own modeling skill is unsurpassed. Starting in the January issue, Ed will present a pageant of American locomotives complete with photos and building data. Every important locomotive type will be covered in this series and, as the months progress, it will develop into a most valuable reference guide for model builders' use. You'll like this series of articles plus the many new features that will appear in the Craftsman during 1952.

A Christmas Gift Suggestion

Now here's another tip, a gift suggestion that will gladden the heart of any model railroad enthusiast—twelve months a year. Include the Railroad Model Craftsman magazine in your Christmas shopping list; it's a gift of lasting interest that will be read and enjoyed many, many times throughout the year. Subscribers receive their copies promptly each month, flat in envelopes.

Assure your favorite model builder a bountiful supply of reference material to cover every construction need around a model pike. It's simple! Just paste the coupon below on a penny post car, sign your name and address and pay one month later, or, if you prefer, enclose payment. We'll send an engraved gift card bearing your name to your own, special modeler. Reserve those future copies of the Craftsman now!

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Passenger Train Make-up

EXCEPT in rare instances, passenger trains are not turned completely at the ends of their runs—at St. Louis, passenger trains are wyed into the Union Station, and at New York the P.R.R. runs many passenger trains around the Sunnyside loop. Hence if the combination car is at the head end going east, it will be at the rear end going west. Railroads try to put baggage, mail, express cars, etc. at the front of a train, but sometimes to save swtching they will be tacked on at the rear and I have seen several box cars —actually Ry. Exp. Agency cars equipped for passenger train service—at the rear of a crack train. Sometimes location of terminal facilities for mail or express will lead the line to locate these cars at one end of a train all the time.

On mixed trains, the passenger car or cars are usually placed at the rear so that the passengers are not buffetted about by the numerous switching moves required of the frieght part of the train. Since freight cars are not equipped with steam connections, the coach of a mixed train will likely have a stove if climate is cold. . . . *D. Fogal.*

Go All The Way—Join NMRA

MODEL RAILROADING is truly the fastest growing hobby in all the World and in 1951, more than 10,000 model rails are members of the National Model Railroad Association—the modeller's own fraternity. And why not??? NMRA has done and is continuing to do much to make our hobby the wonderful fun it is today. Those of you who already are members of NMRA know what I'm talking about. But you fellows who haven't yet joined—well, you just don't know what you are missing!

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Write to NMRA, Box 1238, Station C, Canton 8, Ohio for complete information. Better still, see your hobby dealer; he'll fix you up with everything you need. —*Steve Donohoe*

Switch Control

I HAVE a TT gauge layout, 6½ x 3' mounted on a plywood base. This is solidly braced underneath to which are attached suction cups to keep the layout from sliding around and to prevent marring the desk upon which the layout rests. Before the layout was set in place, I mounted six switches beneath the base board, controlled by choke wires. This was satisfactory until expansion plans called for a yard and engine terminal. There was no more room under the layout (1" space between base and desk) to run controls so the following idea was devised which may be of interest to fans in TT and other gauges.

Starline manufacturers a bell crank and rod guides which, although a little large for TT, don't look bad at all. Their guides come in one to four holes and these should be placed two inches apart, closer if running your wire on a curve. I used piano wire size #10 or .024" although I believe the next size larger would be better as the guide holes could easily be reamed out. The big problem was how to insulate the switches from each other and still have enough tension on them. This was solved by using a piece of 3/16" threaded brass rod, with nuts to match, about six inches long; this length would provide space for more levers if and when they are needed. In putting the assembly together, working left to right, I put two nuts, then the bracket which holds it to the layout, then two nuts followed by a piece of lucite 5/16 x ⅛ x 2¼" long (or any non-conductor), then two nuts, then a piece of plastic and so on. Using two nuts all the time, one acts as a lock to the other and in this way you can get the desired tension on the switch without using springs. Some of the distances the rods run might not be prototype, but they work satisfactorily and are not too unsightly. . . . *Ray Murray Jr.*

Painting Notes

PAINT consists basically of three materials; first, the vehicle which is usually an oil; second, the pigment or coloring matter; and third, the drier which hastens the hardening process. Oil paints usually consist of white lead or zinc oxide, together with the necessary amount of coloring matter mixed in oil. This paint would give a rather flat finish which can be varied by adding either turpentine or raw linseed oil. Raw oil reduces the flatness, producing a semi-gloss, while turpentine cuts the gloss and produces a flat finish to the paint. For a real, glossy surface, enamel is used which consists of coloring matter mixed with varnish and a little raw linseed oil. . . . *L. Drumond*

Never try to solder locked seams without first running flux down the center of the joint.

ROTARY SWITCH MOTOR

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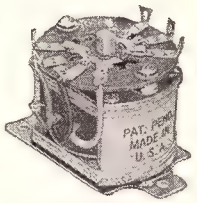

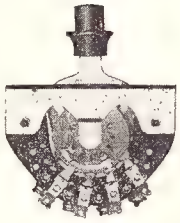

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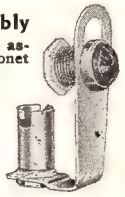

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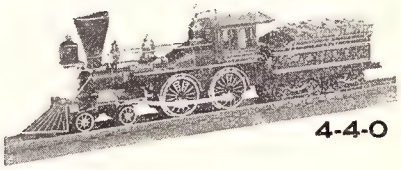

4-4-0

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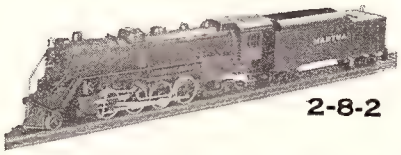

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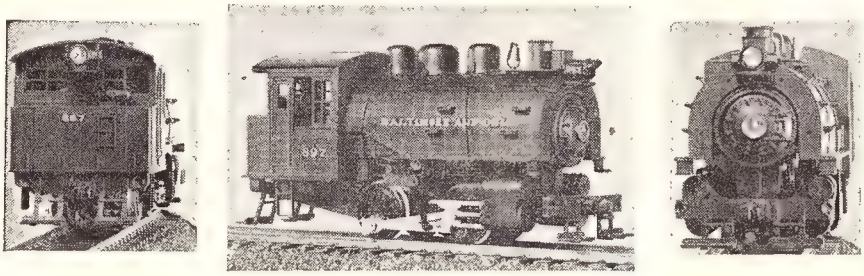

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Model Photography

THERE comes a time in the career of every railroad modeler when he wants to take pictures of his handiwork. His attempts with a snap-shot camera, perhaps equipped with a portrait or close-up lens, are apt to be discouraging—dark areas, blurs, maybe no picture at all. Maybe he calls in a friend, who is a photographer, who will come up with better results. But one hates to impose on friends and commercial photography is a bit too expensive for the possible returns from a model railroad picture. It boils down to what kind of a camera is best for model railroad photography?

If you will think a moment, you will realize that model railroad photography is different from live model or any other type of photography except still life. You can place your train on a bridge, arrange another train under the bridge, etc. and they will stay there as long as *you* want them to. We do not have to take snap-shots at 1/100th second, or even 1/25th second. We can take *time exposures* from one to ten, twenty, or even more seconds. We do not need an expensive lens such as f.3.5, f.2.1, f.1.5, etc. which are intended primarily to take snap-shots under adverse lighting or movement conditions. What we want is a smaller lens opening such as f.22, f.32, f.64, or even f.128 (very rare) : this lets in less light, but we can take *time* exposures, remember. One advantage of the small lens opening is that the *depth of focus* is greater.

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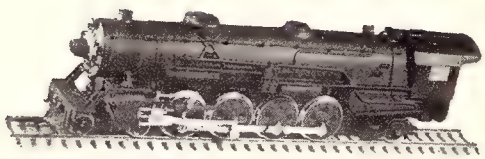

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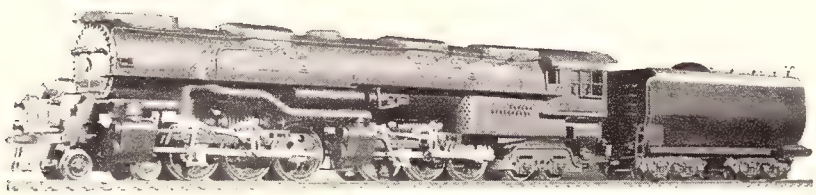

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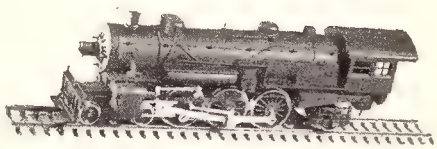

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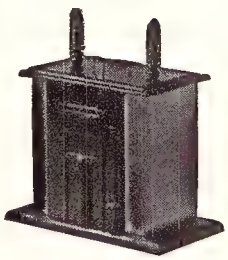

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With a ground glass back on your camera, you have to slide out the glass and slide in some type of film holder before taking your picture. Many cameras with ground glass backs require cut-film or film-packs, both of which are awkward for the part-time photographer. Film packs are fabulously expensive, compared with roll film, and, owing to a metal container, inclined to be scarce during periods when metals are tight. Cut-film is o.k. if you have a darkroom. But when you buy your camera, see if you can get a *roll film adapter* which enables you to have the advantages of roll film (cheapness, easy to find) plus the advantages of having a ground glass back on the camera. These roll film adapters do not come for all sizes and are hard to find.

Now as for the camera, you don't need anything deluxe. A second hand job is good enough as long as it works. For close-ups you need a *double extension bellows*. That is, the bellows opens up as on any folding camera, but then opens out by a gadget to almost twice that depth. This enables you to get quite close to the model, although the depth of focus is more critical (which is obviated by using the smallest lens opening). You might even be able to find a camera on which you can tilt the back end from side to side which enables you to take an almost-front view of a model engine and still have the rear of the tender in perfect focus. I'd suggest getting a camera that doesn't use film larger than 116 size, because once you get into 4" x 5" stuff, your film and printing costs mount.

Built in flash synchronizer? Nah, nice to have of course, but even one photoflood light in a reflector(desk lamp to you) moved slowly around the object while the time exposure is going on does nicely. Coupled range finder? Whatfor? You focus on the ground glass back. Exposure meter? A waste of money and time: open the shutter, count up to five, or ten, or fifteen, close it. That's all. Your model pictures will be taken under almost identical conditions so that you don't need to worry about variations in exposure very much.

The one essential accessory is a tripod with a tilting head so you can attain various angles and various heights. Here again, a second-hand one will probably do and be cheaper.

My camera cost me $25 before the war. It is an ancient European contraption, but it does the trick as long as I do my part and the local photo-finisher (who unfortunately has a monopoly) does his. The lens is not quite parallel to the film, fatal for most work, but inconsequential on model r.r. work because I stop way down to f.22 or f.32 and so get a great depth of focus anyway. You should be able to pick one up these days for about twice that figure, maybe less. Remember: ground glass back, double extension bellows, roll film adapter, ability to stop down to a very small lens opening, time exposure—*John Kemp*

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CNJ 0-6-0 Switcher
Disappearing Pike

OCTOBER
Model Trolley Control
Baldwin 0-6-6-0
Model Glass

NOVEMBER
Electronic Control
Some Old Time Varnish
There's Always a Prototype

DECEMBER
Camouflage Operating Space
Mother Hubbard 4-4-0
So You Want Old-Timers

The listings above are only a partial index to the many interesting features and departments in each issue. Every magazine is packed with constructive material covering a variety of projects in all gauges.

Railroad Model Craftsman — Dept. 1251 — Ramsey, New Jersey

Gentlemen:

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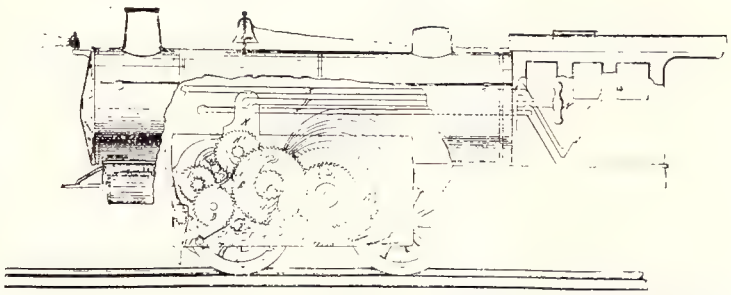

If you've ever wondered what a clockwork locomotive looked like inside, this "X-ray" view of a Maerklin 0-4-0 of the 1920's will supply the answer. The three levers controlled the brake, reverse, and a speed control that could be thrown into gear when the locomotive was operated alone.

ALONG THE TINPLATE TRACK

(*Continued from page* 25)

train having passed through the Mojave desert—a train with individuality." In sets with the 3257, the electric type locomotive was also finished in the mottled gray. Ives was always strong for incorporating a suggestion of the color in the name of a train—"The White Owl," "The Fort Orange," "The Greyhound," "The Red Arrow," and "The Greenaway Special," for example, were all indicative of their individual color scheme. American Flyer, of course, had their 'Bluebird" and Dorfan their "Blue Diamond." Boucher, Ives, and Lionel all had trains named "The Blue Comet," although the Ives version was simply derived from its blue color—it was a small O gauge set—while Boucher and Lionel endeavored to imitate the real "Blue Comet" in de luxe Standard gauge trains with a cream band down the window line along the side of a blue car.

The clockwork trains of the 1920's were pretty well covered last month, at least as far as the domestic productions go—iron 0-4-0 locomotives, mostly with four-wheel cars; a few of the larger sets with 6½" eight-wheel cars. There were also some clockwork operated electric type locomotives, very small stamped metal square cabs by American Flyer and Dorfan, and a series of much more prepossessing New York Central S1 types by Ives, following the design of their contemporary electrically driven models, a stamped body on a cast iron frame, and, in fact, using the same bodies and frames as such electrics as the 3250 and 3253. The biggest and best was the No. 32 wind-up, corresponding to the 3253, and in its own niche as symbolic of all the now-past glories of the golden era as any of the big electric types in Standard gauge.

Imported wind-ups were mostly of 0-4-0 type, and except for the Bings, which were of iron, of stamped metal. However, Bing and Maerklin did have outstanding American prototype 4-4-0's in O and No. 1 gauge. These were also made in electric versions. Perhaps the most outstanding of the imported models were the live steamers, particularly the big Maerklin 4-6-2's, at least some of which were made up for sale in the United States around 1925 not only in O and No. 1 gauge, but to operate on Standard gauge track as well. These were, of course, simply altered No. 1 gauge locomotives, as were the 4-4-2's which were made for F. A. O. Schwarz of New York even a few years later. The 4-4-2's were, however, British types, while the 4-6-2 of the earlier years were strictly American models. Mechanically they were virtually identical to the Maerklin French type 4-6-2 which is illustrated this month, and many of the No. 1 gauge French models were turned out for sale in this country, "Americanized" by the addition of a pilot and bell.

It seems fitting and accurate enough that most fans should today designate the 1920's as the golden era of tinplate. Certainly it lives in memory with models the like of which we shall not see again.

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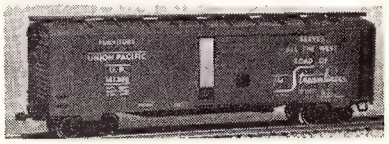

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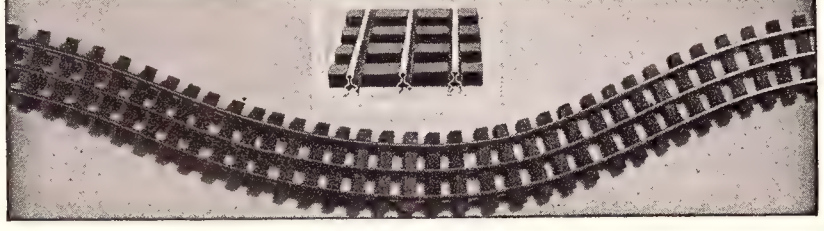

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Now a "beef." Naturally, you take a pride in the work—but please don't make model railroading seem so forbidding! When a would-be TT modeler asks you about the hobby, don't—please don't brag about the thousand hours you spent detailing your bay window caboose—or the 87 blocks in your layout. Y'know the type—"Oh yes, I could have done it with three, but I used 45 relays." Let him know the truth—TT modeling is easy, fun and inexpensive. Motive power is priced from $10 to $100, some kits can be assembled in an hour. Yet there is no limit to the detail that can be incorporated. So c'mon fellas—tell the truth. TT can be as involved as you want it to be. But it can be, and is, simple enough to afford pleasure to the greenest neophyte.

WATCH FOR IN TT:

Nylon wheels. Yes, nylon! These are being used in the larger gauges very successfully, and are about to appear in TT . . . "Cabeese—Couple of these are on the drawing board now.

TROLLEY TALK:

Any of you who are traction fans, and would like to see trolley kits in TT—just sit down and drop me a post card. A manufacturer who is interested and ready to produce traction kits will do so if *you* are interested.

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More next month.

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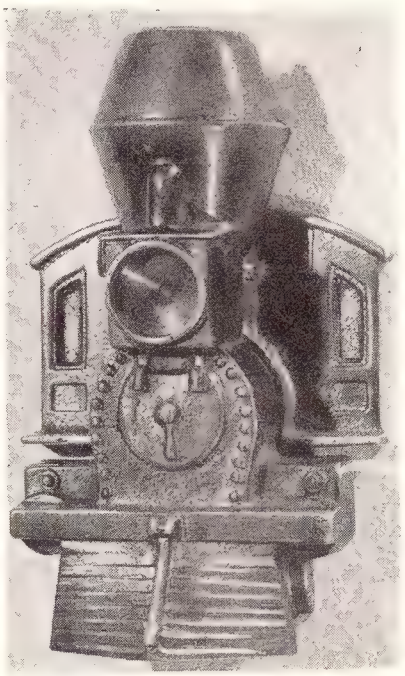
Next month—Lights in your Loco—don't miss it. Write in questions, beefs and suggestions. All photos—$5 for these. S'long for now.

Loco Door Knocker



Here's something which strikes of the unusual and which should prove of interest to all modelers, both young and old alike. It's a door knocker, in the form of a quarter inch scale reproduction of an 1860 Rogers locomotive front. The device is of cast brass, almost four inches high and is hinged on a back plate representing the cab front. Swell for use on your front door or for the door to your "Empire" room. Finished in polished bronze or brass by E. P. Alexander of Yardley, Pa. For further information and data on other interesting railroad items,

Refer to D12151. See page 49.

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Basically the kit has only three major castings to assemble, all well detailed with all holes fully drilled. The castings are pressure cast Zamak, exceptionally clean. The frame is equalized and fully detailed; power for the model is supplied by a husky Pittman DC-71-A motor. All small parts such as compressor, whistle, and bell are included; only tools required for assembly are a screwdriver and a file to clean castings. Construction of this model is greatly simplified but with no loss of detail; average assembly time should be under 3 hours, exclusive of painting. The model is equipped with scale wheels built to NMRA standards. For illustrated literature,

Refer to D12251. See page 49.

Doubles Plant Capacity

The Bob Peare Engineering Corp. of Clifton, N. J., manufacturers of a complete line of trackage, rolling stock and electrical accessories, have just completed a plant expansion program which has doubled the available floor space and production facilities. Among the added equipment are several automatic screw machines and a complete die casting department of the most modern design.

New O Gauge Motor

The Tomhar Mfg. Co. of Kirkwood, Mo., have just produced a new DC 12 volt motor with 5/8" single shaft. Contains a powerful alnico magnet; the motor is capable of powering any loco and hauling with ease a string of crack varnish or long haul freights. Sturdily built from first grade materials, this motor has quick response to the lowest spot on the rheostat. Two tapped holes on each end of the motor frame provide mounting for bracket (not included). Tension on brushes is held at the bottom by a fine spring securely fastened to each brush holder. One of a half dozen different types, including double shaft, this motor is also available in AC. For further details,

Refer to D12351. See page 49.

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country. The locomotives and their means of power are of particular interest. They're fitted with an entirely new type of motor of which the winding is stationery, consisting of many turns of heavy gauge wire. The Alnico magnet, ground to fine limits, rotates in a housing within the coil; thus the magnet rotates in the intense field within the coil where there can be no "strays" to impair efficiency. The coil has no iron core so that theoretically the speed of change of polarity is unlimited. Only two short impulses are required per revolution and the current must be in alternately opposite directions to provide these impulses.

The motor is located in the tender, and flexibly coupled to a pinion carried in an eccentric bushing. The bushing enables slight meshing adjustments to be made. Geared to this pinion is another carrying a universal joint with sleeve and drive shaft to a second universal joint within the loco. This latter carries a second eccentric bushing with pinion engaging a crown wheel which in turn meshes with the final drive on the road wheels.

The main loco and chassis are pressure die-cast with all detail faithfully reproduced. Completely finished in a hard-wearing baked enamel. For complete details of entire line,

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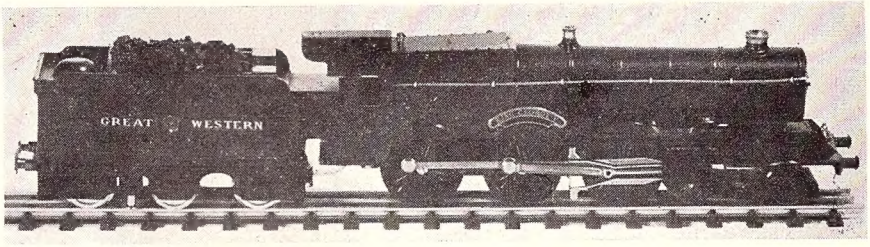

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Of Railroad Model Craftsman, published monthly at 307 Main St., Kutztown, Pa.
State of New Jersey
County of Bergen ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Charles A. Penn, who, having been duly sworn according to law, deposes and says that he is the Publisher of Railroad Model Craftsman and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

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Sworn to and subscribed before me this 28th day of September, 1951.

(Seal) EVA GABRIEL

(My commission expires Feb. 14, 1952.)

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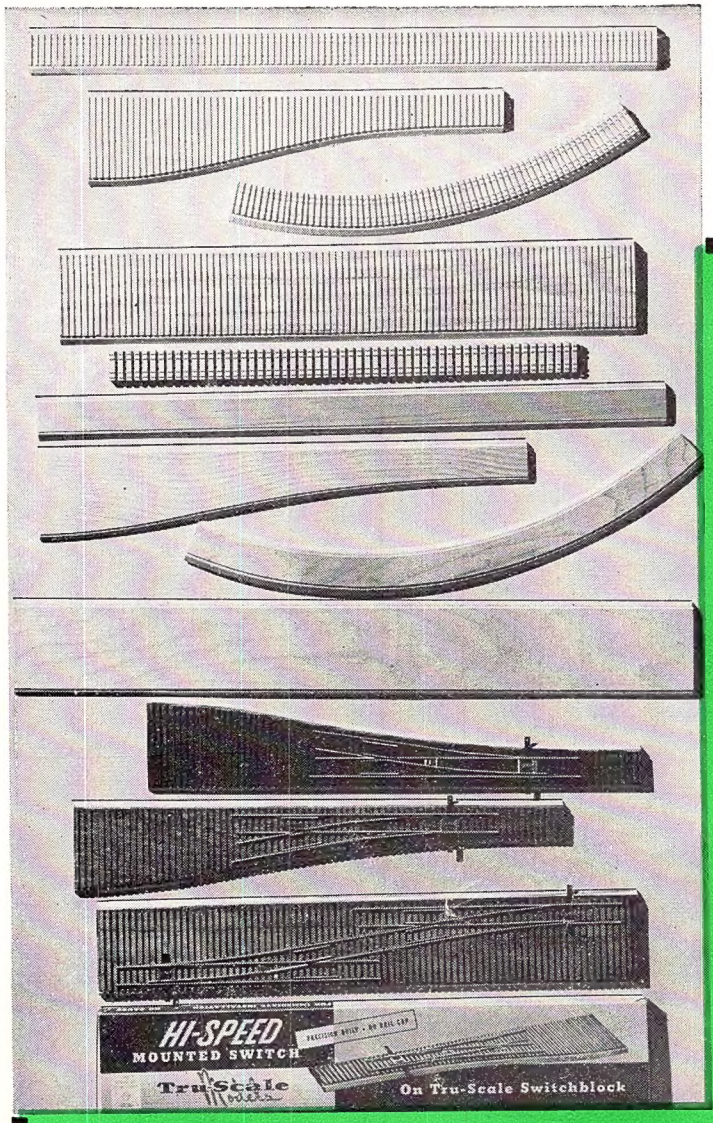

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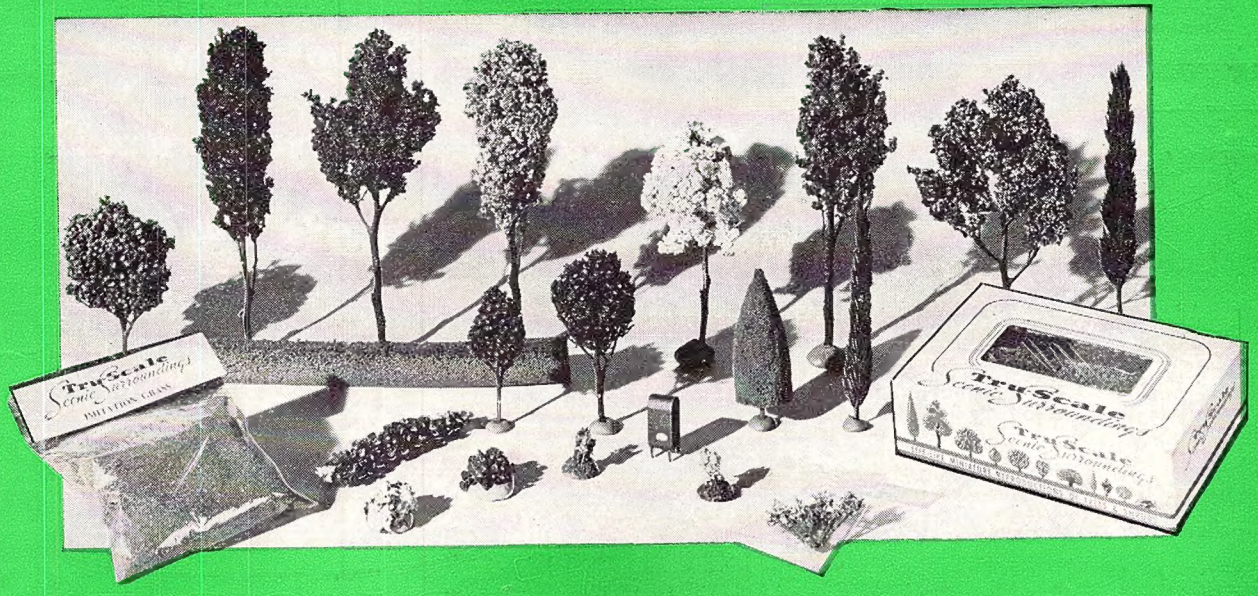

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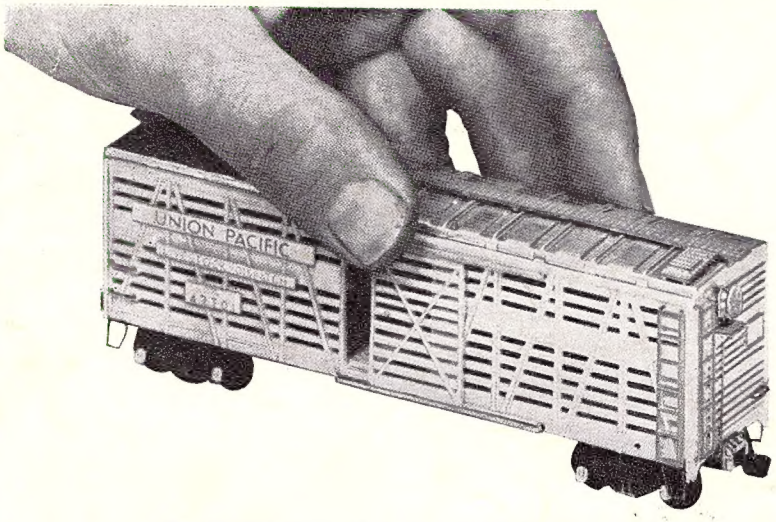

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